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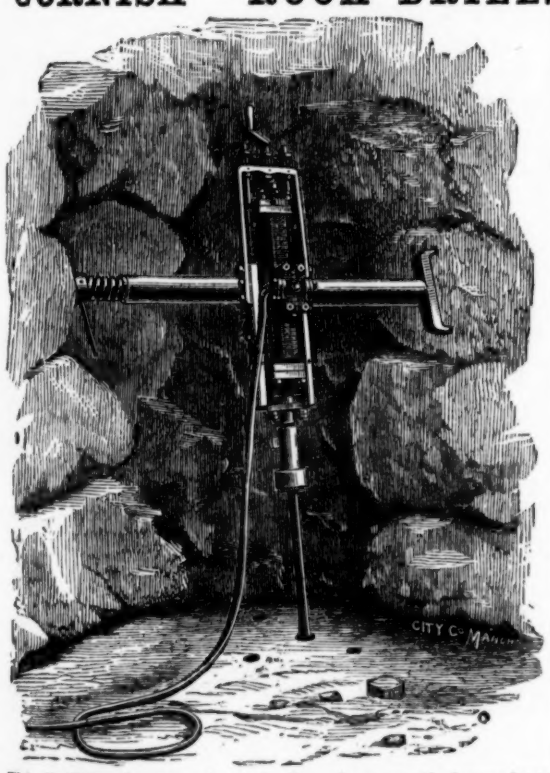

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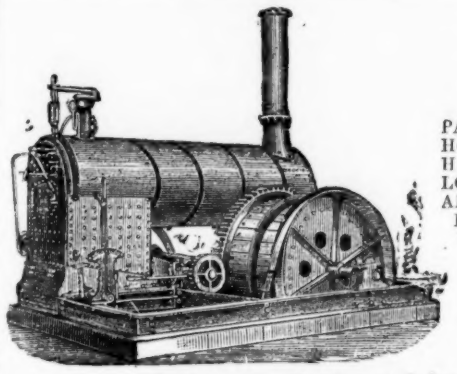

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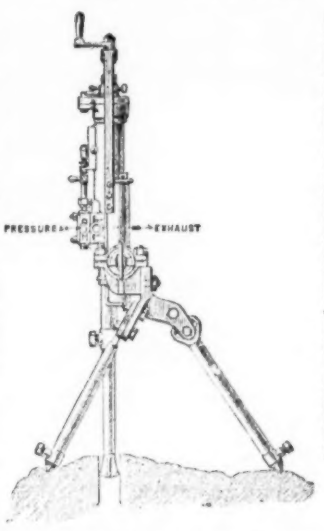

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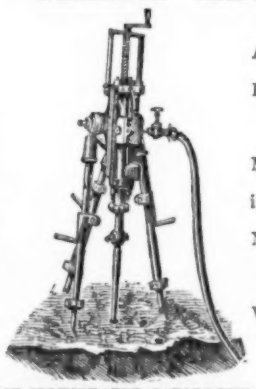

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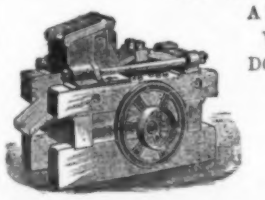

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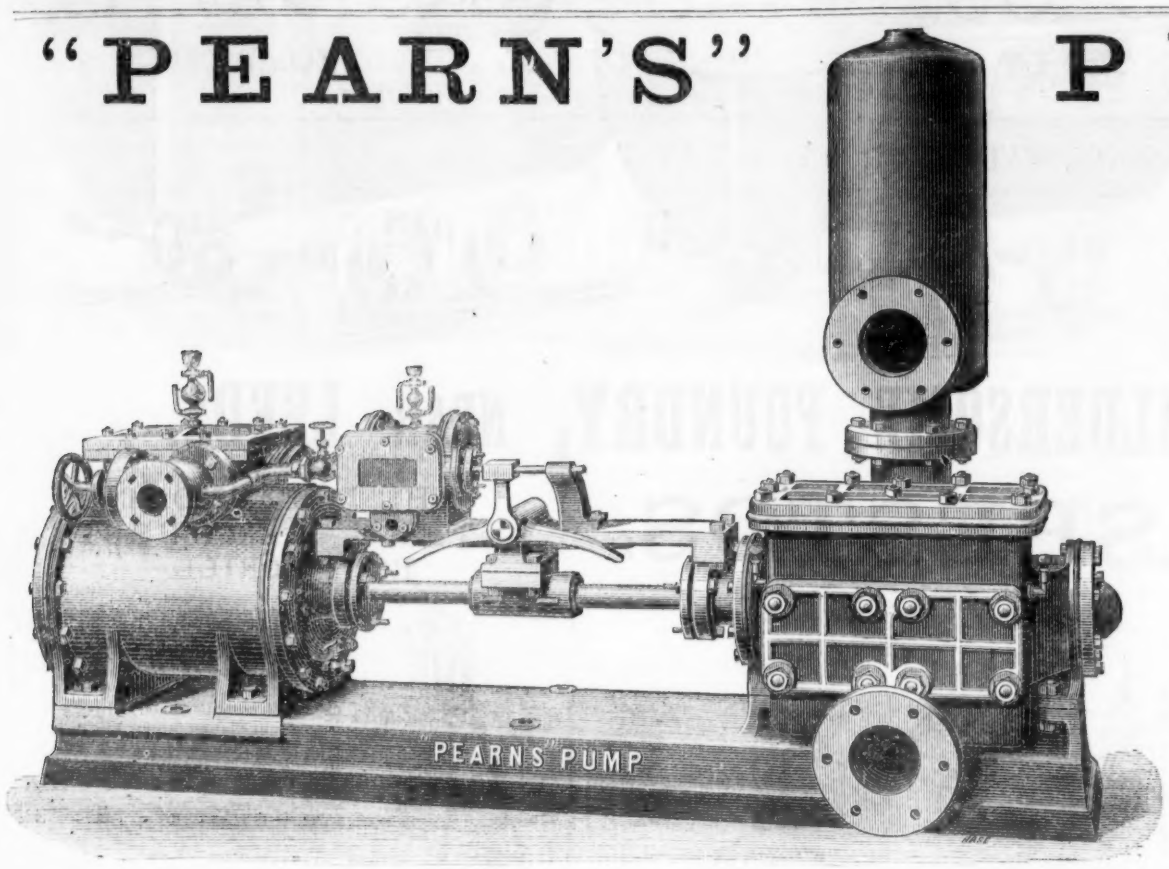

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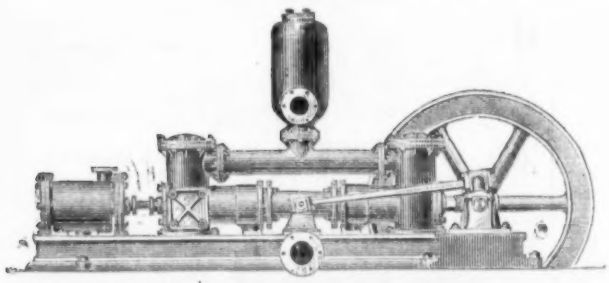

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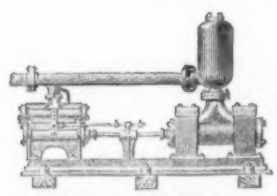

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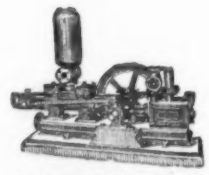

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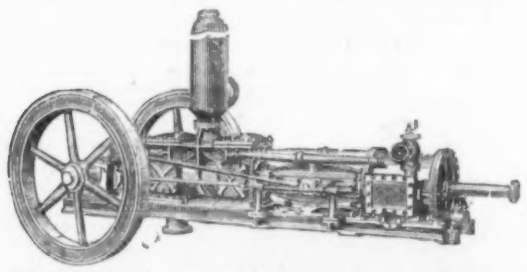

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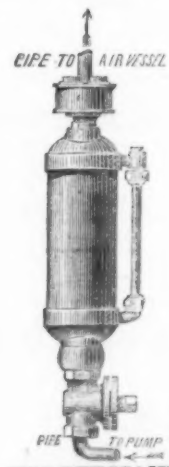

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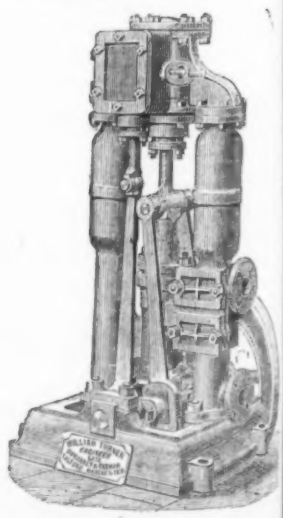

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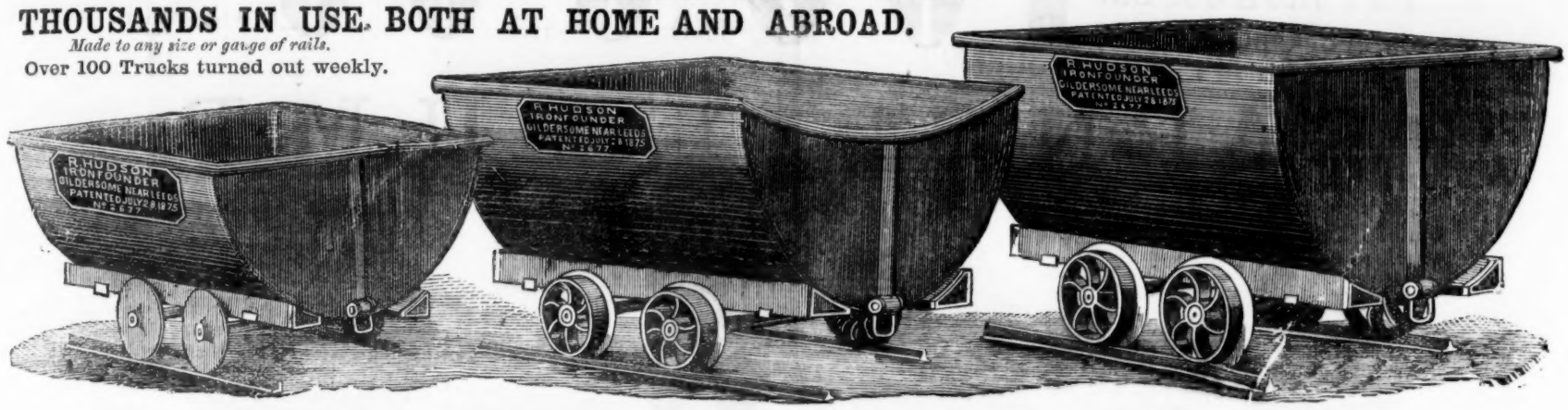

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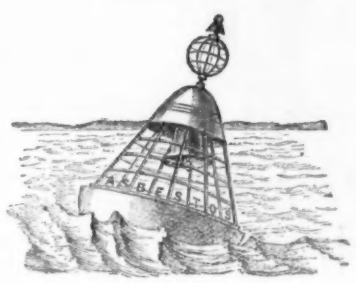
TRADE  MARK.

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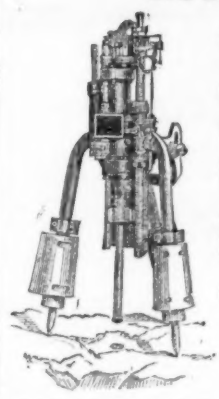

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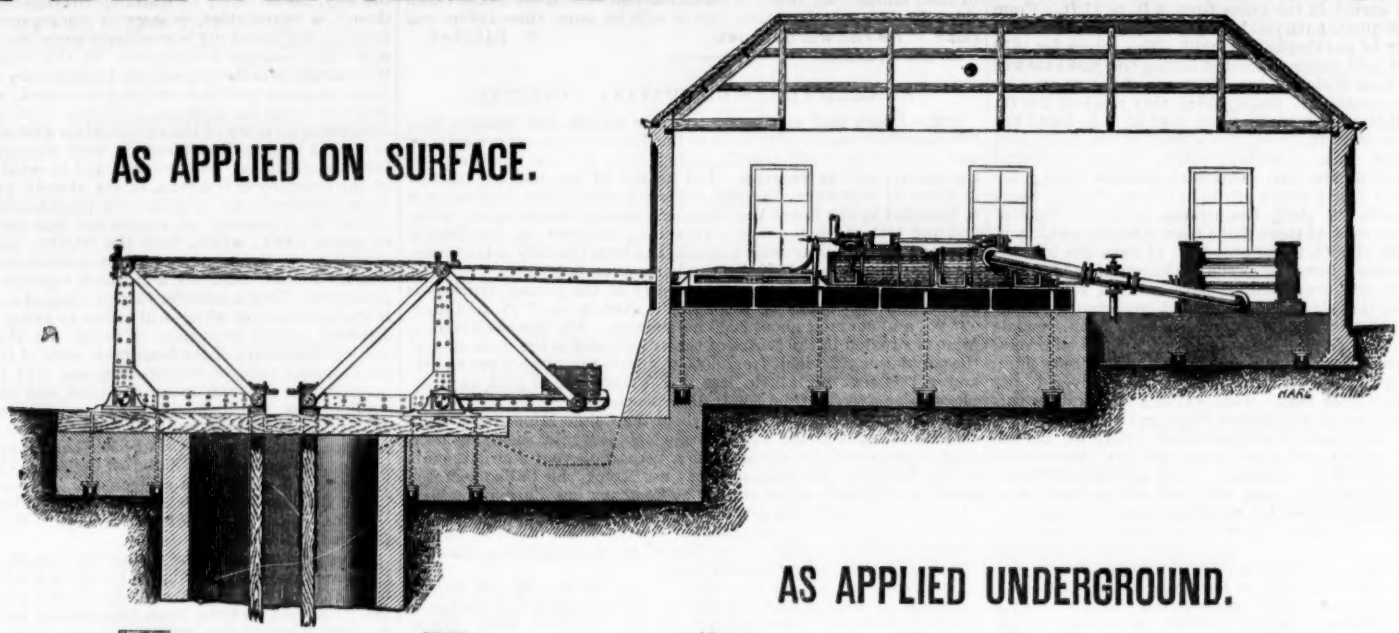

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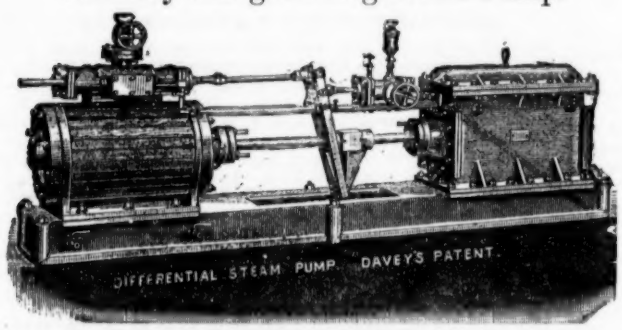

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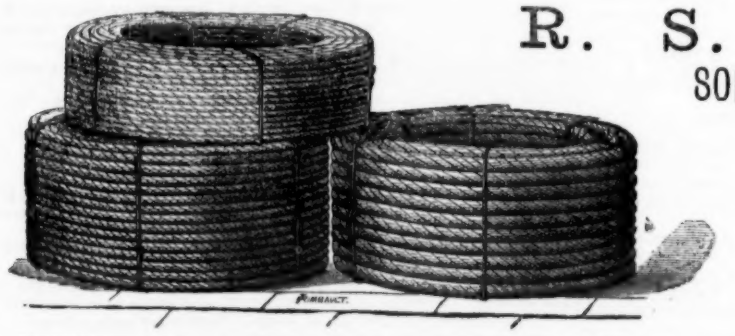
10	9	15	17,300	70	85	100	120	6½	1½	2½
12	6	24	6,500	250	90	104	130	4½	2	2½
12	7	24	10,500	180	96	110	136	5	2	2½
12	8	24	13,500	140	100	114	142	6	2	2½
12	10	24	21,300	90	120	136	175	7½	2	2½
14	7	24	10,400	250	110	130	156	5½	2½	3
14	8	24	13,500	190	120	145	165	6	2½	3
14	9	24	17,300	150	130	150	172	6½	2½	3
14	10	24	21,300	120	140	162	190	7½	2½	3
14	12	24	30,800	80	160	190	216	9	2½	3
16	8	24	13,700	250	140	170	195	6	3	3½
16	9	24	17,300	200	150	180	215	6½	3	3½
16	10	24	21,300	160	160	196	225	7½	3	3½
16	12	24	30,800	110	180	220	246	9	3	3½
16	14	24	42,000	80	200	242	264	10½	3	3½



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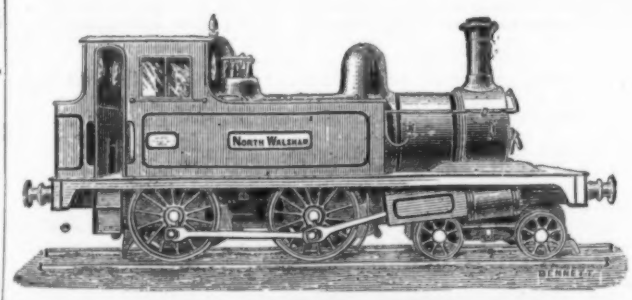

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Original Correspondence.

THE QUEENSLAND GOLD FIELDS.

SIR,—Encouraging information continues to come in from the gold fields; many of the mines are making excellent and increasing returns, and in all districts the development going on is producing results which will suffice to satisfy capitalists both here and in England that the mines of Queensland are well worthy of consideration. The subjoined details from local newspapers will confirm this. The report of the Department of Mines for 1878 stated that in the Tyrconnell the reef has varied in thickness from 5 ft. to 11 ft. From this claim 603 tons of quartz have yielded 1896 ozs. of gold, and about 1200 tons will shortly be put through the mill. The report for 1879 says that the yield of gold obtained from it during the past year was 4495 ozs., from 1772 tons of stone; over 1000 tons of quartz are now raised, and ready for crushing. During 1880 they reached 200 ft., and the report for that year says that the reef at this depth has attained a width of over 20 ft. (being the widest on the field), and the last crushing taken from it, without culling the stone, yielded about 21 dwts. of gold to the ton. This mine crushed during the year about 2515 tons of quartz, which yielded 4712 ozs. of gold. Since the date of these reports the shaft has attained a further depth of 40 ft., from which 310 tons of stone have been taken in sinking it, which yielded 515 ozs. of gold, being over 1 oz. 13 dwts. per ton.

We have several times referred, says the Cooktown Herald, to the argentiferous reefs at the Coen, and we have a belief founded on some little experience that along the sierras and mountains bordering that river are sources of almost untold wealth. With a couple of picks and a shovel three men in a fortnight unearthed several blocks of stone weighing each nearly a quarter of a hundredweight, which approximately contained 55 per cent. of pure silver, 10 per cent. of pure gold, and 15 of lead. That was at 8 ft. from the surface, and close on the base of a mountain ridge, and such a discovery in the States would have made Wall-street wild. Here we are too far from the base of capital and speculation, and our Government has hitherto almost ignored our resources. There are men now working for 3*l.* 10s. per week who held and still hold within their experience the means of Manitoba wealth, were the capital for machinery available, but the cost of carriage for ore is too heavy; we must extract on the site, and we know of no hopeful speculation in Australia than first opening up the argentiferous sides of the Coen range, and then placing there improved machinery for the extraction of the ore.

From One-Mile (Gympie) a report was received, on Nov. 1, of a crushing of 139 tons of stone from the Junction has yielded 580 ozs. gold. Specimens containing 45 ozs. of gold have been obtained in the South New Zealand Claim. Very good stone is being got in the Nicholl's lease from which place news a week latter says—Nicholl's lease cleared up 160 tons for 1133 ozs. of amalgam. Now putting 140 tons more through the machine; and, on Nov. 8, the report was —423 tons of stone from the No. 1 North Phœnix Mine has been crushed for a yield of 861 ozs. gold. The Phœnix prospectors have crushed 410 tons for 215 ozs. gold.

From Charters Towers, Warden Sellheim continues to report results with which all should be satisfied. A correspondent (Aug. 25) writes—The Caledonian Prospecting Claim have cleared up 1581 ozs. of retorted gold from 226 tons of ore. When the pans are cleaned the crushing is expected to average 7 ozs. per ton. In his report for September Warden Sellheim says that the aspect of the field indicates general prosperity, and rapid advance is made in working the deep ground. I estimate that since the beginning of the year about 40,000*l.* worth of new machinery has been placed on the ground, and large additions are either ordered at the foundries or are in course of transit. Even in the mines down the river renewed activity and systematic work are becoming noticeable. On the Broughton, where things have been very dull for a long time owing to want of capital, the introduction of steam-power and winding and pumping machinery are beginning to effect a change, and now that the heavy water can be overcome I expect to see satisfactory results similar to what characterised the locality two years ago. I have paid a lengthened visit to the Cape River gold field, and as the principal object of my tour was to make a rough feature survey, with a view of amending the present boundaries of that field, I have had greater opportunities on this occasion of thoroughly examining its resources than in any previous visit. Seven gold mining leases have been applied for, but the Union Reef at Mount Davenport is the only one in full work yet, as the difficulty in getting up the required machinery is retarding operations. Here they are engaged in getting a fine 10-head stamper into position. They are winding and pumping with their second engine. In a good-sized paddock of stone I saw several large blocks impregnated with coarse gold; 20 men are at work. At the head of Deadman's Creek five men are at work. The reefs here occur in metamorphic granite, and the stone resembles that of the Etheridge at the top levels. Mr. Johns, the prospector here, who owns the crushing machine at Norwood, proposes to shift it here before long. He has 100 tons of quartz at top, and says it prospects for an ounce. On my visit to the Black Mount—a volcanic cone at the head of the Cape, and which it was necessary for me to ascend for the purpose of obtaining cross bearings for my work—I crossed several auriferous outcrops, and I think there is a field in that locality for prospecting. The sluicing claims are at present idle for want of water, and some men are engaged "fossicking" amongst the forkings and hopperings for specimens. In the latter there have been some successes, but no accurate information is obtainable. The returns of the September crushings at Charters Towers show that from 29 claims 4066 tons of stone yielded 6488 ozs. of gold, or at the rate of 1 oz. 11 dwts. 2 grs. of gold to the ton.

The October returns were still more satisfactory, for Warden Sellheim reports that during that month 4848 tons 12 cwts. of quartz has been crushed for a yield of 8654 ozs. 15 dwts. of gold, giving the handsome average of 1 oz. 15 dwts. 16 grs. per ton. The most noticeable crushings have been—932 tons, Day Dawn, per cent., 2649 ozs.; 710 tons, Just-in-Time Block, 924 ozs.; 283 tons, Worcester, 1281 ozs 10 dwts.; 510 tons, Dan O'Connell, 670 ozs.; 182 tons, Bonnie Dundee, 338 ozs.; and 1128 tons, Hope Claim, 1744 ozs. Nothing has occurred that calls for special notice, and the even prosperity of the field continues, and must increase daily as soon as all the new machinery lately arrived and in transit once is put in full work. An escort left Charters Towers on Oct. 25 in charge of Inspector Morriset, taking 11,975 ozs. 18 dwts. 20 grs. of gold. Only two of the banks participated—the Queensland National and Joint-Stock, the former sending 6466 ozs. 9 dwts. 7 grs., and the latter 5509 ozs. 9 dwts. 13 grs. The Bank of Australasia and New South Wales held back 13,500 ozs. The total of gold dispatched from here since the beginning of the year amounts to 70,789 ozs., which, added to the quantity held, makes a grand total of 84,289 ozs. up to date. It is reckoned that the product of the field for the year will reach 100,000 ozs. At Day Dawn Company a dividend of 2s. per 24,000th share has been declared, and 1300*l.* taken overdraft in connection with purchase of machine. The company's engineer is preparing plans and specification for a battery, to consist of 48 head of stamps. The Hope Company reports (Nov. 8) a clean-up for 1003 ozs. of gold. From Nebo (Nov. 21) it is reported that the Little Wanderer claim has cleaned up a crushing of 150 tons of stone for a yield of 1120 ozs. retorted gold. From Thornborough, same date, it is announced that 390 tons of stone from the Union claim yielded 594 ozs. 15 dwts. of gold.

With regard to the Hodgkinson district, Warden Towler reports that during July, August, and September 2422 tons 9 cwts. of quartz were crushed, for a yield of 3144 ozs., an average of 1 oz. 5 dwts. 23 grs. of gold per ton: 202 tons from the Lizzie Redmond produced 352 ozs., and 435 tons from the Tyrconnel lease yielded 371 ozs. This crushing was not up to the average run of this mine. In the Northcote district 108 tons from the Minnie Moxham yielded 457 ozs., and 20 tons from the Disraeli Extended, over 90 ozs. The Tyrconnel lease has started sinking, and consequently will not have any more stone to crush until about Christmas. When starting to sink I heard that the men who were employed in the wet ground knocked off work and asked for an extra 5s. per week wages. This was refused, and a number of the men knocked off altogether, but they have been replaced by others, and the work continued. Although the antimony mines existing in the vicinity of Northcote are without doubt extremely rich, there seems to be some difficulty in obtaining the necessary capital required for erecting smelting works. Several gentlemen representing capital have lately visited the mines, and speak favourably of them. Mr. S. J. Denny, a shareholder in one of the richest of these mines, some months ago commenced operations for erecting smelting works, but after having 30,000 bricks made and placed upon his machinery area, discontinued work for reasons unknown to me. A number of miners interested in this class of mining have made an offer to Mr. Herrenschmidt to supply him with ore at certain rates should he erect smelting works in the vicinity of their mines. Mr. Herrenschmidt has visited their mines and taken the offer into consideration, but it will be some time before the result of his visit will be known.

N. BARTLEY.

Brisbane, Dec. 6.

THE GOLD FIELDS OF GUAYANA, VENEZUELA.

SIR,—I have read with interest various letters and remarks from correspondents and contributors to the Journal on the above subject, and can endorse much therein stated from personal knowledge of the country and its resources. The district of the mines is reached in about 34 days from England, the route being from Southampton to Trinidad by the Royal Mail steamers, leaving Southampton on the 2nd and 17th of each month; thence by steamer up the Orinoco river to Cuidad Bolivar twice a month, and from that city to the mines, *via* Las Tablas, about 150 miles, on horse or mule back.

The village of El Callao—the centre of the mining district—is situated on the banks of the Yumair river, in lat. 7° N. and long. 62° W., and contains about 3000 inhabitants. The famous El Callao Mine is situated in the centre of the village, and is the main stay of the population; it yields from 6000 to 10,000 ozs. of gold per month, and in 1882 sent down little less than 100,000 ozs. of gold, and employs on an average from 800 to 1000 people daily.

The next property to the south of the Callao Mine, and a short rifle-shot from it is the Callao Bis, which, it would seem, has been most appropriately so baptised, as a perusal of your Journal points to the fact that the company has just struck the Callao vein, the same as that from which the Callao Company has during the past 14 years extracted such great riches. I believe that Mr. Campbell Downes, C.E., is the man entitled to the credit of this, having persevered for two years in the face of every conceivable difficulty in bringing about this successful result.

The next property worthy of notice is the Nouveau Monde, known generally in the district as the Nacupai Mine, situated on the banks of the Yumair river, about a mile east of the Callao Mine; it possesses two well-defined and tried lodes of considerable richness requiring only to be developed to make immediate returns. There is an excellent mill erected a few years since at a very considerable cost with an ample supply of machinery, appliances, houses for manager and staff, workmen's cottages, stone buildings, &c., and I am glad to see by your last issue that the works have been resumed, and that the mine is likely to be placed on the dividend-paying list during the present year.

Another property well worthy of notice is that known by the name of the Panama Mine, situated about a league south-west of the Callao Mine. It was extensively worked by an American company a few years since, who erected them an admirable 20 stamp mill together with all machinery and appliances for working the mine on a liberal scale. The rock here is for the moment not so rich as in many other properties around, though I do not doubt that when developed in depth, it may yield as good results as its neighbours. I heard that a company has been formed in London for the purpose of re-opening and working this property. Following a south-easterly direction from the village of El Callao, and about 2 miles distant, is situated the village of Nueva Providencia, which may be considered the centre of the Caratal Gold Mining District. A large amount of mining work has been done in and around this village, most notably so at the El Tigre Mine, formerly known as Caratal Mining Company, which has made excellent returns from time to time, but having been developed and worked only by a small amount of native capital has never had a fair chance of being pluckily and remuneratively opened out. It contains two well-defined lodes, rich both in free gold and sulphurets. The proprietors being fully aware that such a mine as this can no longer be worked with the meagre resources available in the country are now seeking to form a company in Paris for its energetic development. There are also in and close to the village the mines known by the names of Independiente, Australia, Nueva Providencia, Nueva Hansa, Union, and several others, details of which I shall be happy to supply for a future issue.

In regard to the last named—"La Union,"—I have learned that a company is about to be formed forthwith for the energetic development and working of this mine. It is situated south of the El Tigre property, has two well defined and proved lodes running through it, is amply supplied with forest timber for fuel and all mining purposes, and is, beyond all doubt, a property of the highest promise in the Caratal district. Several hundred tons of the rock were tried, some time since, in the Nueva Providencia Mill, and yielded about 3000 ozs. of gold, or at the rate of 2 ozs. to the ton, a result which, even taking into consideration the heavy expenses of road carriage, labour, and provisions, cannot be looked upon as otherwise than highly satisfactory, and promising well for the ultimate success of the company about to be formed.

One thing is certain—that Venezuelan Guayana may be fairly and properly considered the gold field of the future. With a stable Government, imported labour, and a railway from the Orinoco river to the mines, thereby reducing materially the cost of all necessaries, and thereby of the high price of labour, this locality will be able to show results equal to and perhaps better than those produced either by Australia or California even in their most palmy days.

GUAYANA.

THE CALLAO BIS GOLD MINING COMPANY.—No. II.

SIR,—Referring to my letter, to which you were good enough to give insertion in last week's Journal, a few additional facts relating to this company's mines and works may not be unwelcome to the main body of shareholders, who ought to be possessed of the fullest and truest information regarding them.

The No. 1 shaft, as it is now familiarly known, is situated within 40 ft. south of the boundary, separating the Callao Company's lands from those of the Callao Bis Company, and bears slightly west of south from the No. 4, or principal working shaft of the Callao Company, the distance between the two being a little under 1300 ft. The dimensions of the No. 1 shaft are small, as it was put down in the first instance purely for prospecting purposes, and with the idea that the Callao vein would be met with at a comparatively shallow depth. It was quite clear after the first month's working that the Callao vein would only be discovered in depth, and the shaft was accordingly timbered and secured. The size of the shaft has been gradually increased during sinking, and being thoroughly well timbered, will answer as a second or ventilating shaft; but it will be imperative to sink another of much larger dimensions, as the main or working shaft, at some convenient spot, so as to intersect the Callao vein somewhat lower on the underlay. Such a shaft will necessarily entail very considerable expense, bearing in mind the almost famine prices at which labour and all necessaries range in the Callao district—a position of things which cannot, I fear, in the least degree be ameliorated until a railway or light tramway is constructed from the Orinoco to the mining districts of Guayana.

I believe that the Callao Bis Company now possesses at least 2400 ft. in length on the course of the Callao vein, which, as it dips westerly into the company's property, may be fairly considered inexhaustible, provided of course that the rock proves in the mill to be even half as rich as that which has been worked for the last 10 years by the Callao Company. My belief is, and always has been, though that opinion is not enjoyed by many others in the district that the Callao lode is a masterly, true fissure vein, running nearly due north and south through that district, and I further believe that I have been able to trace it for a distance of at least two miles beyond the point at which it has now been discovered in the No. 1 shaft. The general opinion in El Callao has always been that the Callao vein did not pass through the Callao Bis property, or that, if it did, it would merely traverse its extreme western corner. As a matter of fact, however, the Callao Bis Company possess at least 1150 ft. of land in a westerly direction from the No. 1 shaft, upon the dip of the vein. The new shaft above referred to, together with the level which must be driven for the purpose of communicating with the No. 1 shaft, new hoisting and pumping machinery, boiler, &c., will be a very costly item in the capital account of the company, amounting, as it probably will do, to an expenditure of 10,000*l.*; but, when once executed, the property may fairly rank second to none in Guayana.

With the above facts before us, I turn to the printed notice issued by the directors to the shareholders, dated Jan. 16, 1883, which, by the way, the secretary by a strange oversight omitted to send to me, though a shareholder, perhaps in consequence of my not having formally registered my new address since leaving El Callao, but of which the company is cognisant. In this notice the directors give the shareholders the pleasing and satisfactory notification that "the financial position of the company is secured, and that the funds are ample to bring the mine into profitable working." It would be highly interesting to many of the shareholders with whom I am acquainted, as well as to myself, to know in what manner the capital for the future working has been secured, and to what amount. The debts of the company in Guayana, if not already paid off, for materials, tools, machinery, &c., supplied by neighbouring enterprises to the Callao Bis Company on borrow and loan account, would amount to about 2000*l.*, which, with the 10,000*l.* mentioned above, make 12,000*l.*, to which has to be added the general monthly cost of working, salaries, timber, materials, and stores, together with the London expenditure. Thus I consider that an assured sum of, at least, 20,000*l.* is the least amount which will suffice to bring this company into a dividend paying condition. I doubt not that the directors have availed themselves of the favourable state of the market—the Callao Bis Company's shares having been and still being at 50 per cent. premium—to float the unissued capital, and thus secure their future requirements; but it would be a consolation to the shareholders, in lieu of the vague expression referred to above, to know that this is the case. It may not be out of place here to append an extract from a letter addressed to me, dated El Callao, April 1, 1882, by Mr. J. A. Skertchly, C. and M.E. (a perfect stranger to me), who inspected the Callao Bis Company's works, surface and underground, on March 31, 1882, on behalf of one of the vendors. Mr. Skertchly writes as follows:—

"Turning to the works in the No. 1 shaft, I must here also congratulate you upon the judgment displayed in prosecuting the search for the Callao vein. I have carefully estimated the course taken by this lode; and, judging from these results, and an inspection of the veinstuff from Callao, and also from a comparison of the country rock now being won from the No. 1 shaft with that of the corresponding faces in El Callao, I feel assured that you are on the eve of success. I quite agree with your purposed mode of dealing with this part of the property, and would urge you to continue sinking as rapidly as possible. The shoots met with are a strong evidence of the proximity of a vein, and I believe you will meet with the lode at the depth you calculate upon so doing. Should the small leader when cut by the shaft not prove well defined in character, I would lose no time in driving a gallery into No. 2, as I believe the throw of the strike of the Callao lode is to the east, being possibly influenced in this direction by the adjacent Azules lode."

"The stuff now being taken from the No. 1 shaft is peculiarly interesting, as it closely resembles some now being drawn from the shaft in Callao. The slight difference may be readily accounted for by the increased depth at which it is taken in El Callao. It is a truly auriferous gangue, and I would follow it up without delay. When a rock is gained slightly darker, and more greenish in colour, with a finer texture than that now being worked, it may safely be predicted that the Callao vein is not far off, and I feel assured from the character of the ore now on the surface that the much desired event will, if your proposed plan of operations be carried out, be not long delayed. I shall be very much pleased to hear of the attainment of this much desired end." . . . I feel I must not encroach further on your valuable space on this occasion.

C. CAMPBELL DOWNES, A.M.Inst.C.E.,
Late Resident Engineer and Manager in Venezuela of the Callao Bis Gold Mining Company.

EUROPEAN MINERS FOR AMERICAN MINES.

SIR,—At the present time when the subject of emigration is so frequently discussed a few notes on the mining industries of Northern Michigan, a large field for emigration, may be read with interest by those interested in mining operations. The Marquette (Lake Superior) "Mining Journal" of Jan. 6, remarks that when Mr. Oie undertakes to engineer the passage of foreigners from the Fatherland to this country he does not leave the bewildered pilgrims to pick their way here from New York. In order to make the voyage one of ease, and to divest it of its difficulties, he has arranged with the eastern trunk lines of railway (connecting Michigan with New York) to bring his passengers direct to all Upper Peninsula (of Michigan) points, where they may be met by their friends. This railroad agency has but recently been secured, but it has already proved of very great value to Mr. Oie in aiding inward-bound emigrants to reach their friends here from New York.

Miners receive per day of 10 hours from $2 to $2 25c. (8s. to 9s.) per day. The work one week day shift and one week night shift alternating. Miners working on contract make $2 50c. to $3 50c. per day (10s. to 14s.) Prices are about the same all the year round. Furnace men get $2 to $2 25c. (8s. to 9s.); surface labourers at the mines get $1 75c. (7s.) to $2 (8s.) per day; labourers on the railroads $1 80c. (7s. 6d.) per day; teams, $5 (20s.) per day; farm hands, $1 50c. to $1 75c. (6s. to 7s.) per day, exclusive of board; carpenters, painters, &c. receive $3 per day; masons $4 per day; wood choppers $1 per cord. The demand for labour is good, fully equal to and rather in excess of the supply, especially for good miners. The board of single men cost them $18 (3*l.* 15s.) per month. Upper Michigan must ever be a field which will require the labour of a large number of men at remunerative wages, varying of course with the demand for iron and copper; but the country is improving rapidly, and other fields than mining will require labour in the future to a greater extent than has prevailed in the past. The fact that large sums of money are transmitted through the local post offices of Marquette, Ishpenung, and Negaunee, towns in the Upper Peninsula of Michigan, goes to prove that not only are the wages sufficient to pay for the daily necessaries of life, but that they are partly saved and remitted to England and other parts of Europe to relieve their poorer relations and friends at home. Numerous railroads are in operation and others projected, whether they be new lines or extensions of lines already in operation. The quantity of iron ore and copper exported from this area during the last two years is as follows:—

Refined Copper or Iron Ore.	Number of Mines opened up to date.	Amount shipped in tons.	Value of amt. shipped in dollars.
1881—Refined Copper...	33 ...	27,287	... 9,971,702
Iron Ore.....	57 ...	2,321,315	...18,834,923
1882—Refined Copper...	not published ...	30,000 (about)	... —
Iron Ore.....	75 ...	2,943,314	...24,237,166

It is difficult to ascertain the profits derivable from investments in these mines, as they are held mostly by close companies who are unwilling to disclose the dividends realised for fear of increasing the amount of competition thereby. The copper mines of Michigan have been said to have paid $3,500,000 in dividends last year, and of this sum each of the following mines show good returns for 1882:—

Atlantic Mine,	with capital of	$180,000	paid	$80,000 in dividends.
Calumet and Hecla	,,	1,200,000	,, 2,000,000	,,
Central	,,	100,000	,, 50,000	,,
Osceola	,,	880,000	,, 250,000	,,
Quincy	,,	200,000	,, 520,000	,,

That is to say, in one single year these five companies have paid to their stockholders $340,000 more than the aggregate amount of their paid up capital. Since the beginning of mining operations these same companies have severally paid dividends aggregating $28,140,000 or an amount only $20,000 short of being 11 times their fully paid up capital. The mines are without an exception as prosperous to-day as they have ever been, and are likely to continue their suc-

cessful career for years to come. The dividends paid by the Michigan copper industry since Jan. 1, 1882, represent $1,150,000 more than all the mines in Arizona, $1,574,843 more than the gold, silver, copper, and quicksilver bonanzas of California, $946,200 more than all the precious and base metal mines of Colorado, $1,887,500 more than all the gold fields of Dakota, $828,000 more than the mines of Utah, and $1,503,313 in excess of all the mines in Georgia, Idaho, Mexico, Missouri, Montana, Nevada, New Mexico, North Carolina, and Nova Scotia. What may be said of the Lake Superior (Michigan) copper district applies with equal force to Michigan's own mining industries, though the iron mining companies being close corporations their net earnings are not heralded to the world. It is safe to say, however, and we think the facts if they be got at will bear out the statement that the net earnings of the dividend paying iron mines of the Upper Peninsula of Michigan in 1882 will at least treble the amount of dividends credited to the copper mines, though probably no one single iron mine will be able to make such a magnificent showing as the Calumet and Hecla. There are other large industries such as that "timber manufacturing," which offers remunerative inducement to the non-mining emigrant. A. T.

Great George-street, Jan. 29.

ARSENIC CONTRACTS

SIR,—In last week's Journal I notice that a circular had been issued by the Chairman of Devon Great Consols to the shareholders announcing a sale of arsenic having been effected for the next 12 months. As I happen to know a little of the trade I enter my protest against secret proceedings, and suggest to all interested that public companies should in every such case advertise for tenders and not allow the business to become quite a monopoly.

Jan. 30. A CONSTANT READER.

THE AURIFEROUS DEPOSITS OF THE GOLD COAST.

SIR,—I read the report of the Gold Coast Company's meeting in last week's Journal rather hurriedly, and have not the opportunity of referring to it again, but unless my recollection fails me two or three very important points do not seem to have been referred to at the meeting. These are—1. Whether the reef is found to be continuous, and how much of it has been laid open? 2. Does the quartz when crushed in bulk give results at all equal to the samples? 3. Is there any difficulty about labour, and if so how is it proposed to be got over?

I am not a holder of Gold Coast shares, but I have a considerable interest in another gold company in the vicinity, and therefore I venture to ask for information on the above points, as to a certain extent they interest me and all holders of West African gold companies shares. P.

GOLD AND DIAMOND MINING IN SOUTH AFRICA.

SIR,—In every case where companies have been compelled to go into liquidation through want of capital, private individuals are taking over the ground, and working it successfully; this does not speak well in favour of amalgamation. In the Kimberley formation the French, Central, South-East, and North Block Companies are doing extremely well this week. At De Beers Mine the Schwab's Gully Company will pay their usual dividend on Jan. 16. At the Dutoitspan and Bultfontein Mines the majority of the companies will have to go into liquidation. There is nothing doing at the St. Augustine's Mine as yet, and I presume the report that Capt. Finlayson has floated a powerful company in England for its development is untrue. It is reported that a few private diggers are doing very well at Koffyfontein. Jagersfontein Mine is becoming very popular here in consequence of the superior quality of the diamonds, and the parts of the mine from which the floating reef has been removed is being worked at a good profit. Kamfersdam does not appear to be of any value as yet. It is to be hoped that Messrs. Reed and Johnson will be able to make it pay, but I have my doubts on the matter. I maintain, as I have ever done, that no country in the world can compete with South Africa in the production of diamonds; but I believe the future success of a diamond mine will depend more on the quality than on the quantity of the diamonds found. If it were quantity alone which is required the Kimberley Mine could supply the world, and I fully believe that the quantity will so increase in depth that they will arrive at a point where they will find pounds weight per load for every carat they find now. There is utter stagnation in this place at the present time, and as I remarked in my last letter, if a few capitalists were here and watched their opportunity they could do extremely well.

THE TRANSVAAL.—Your readers will remember that I have always pointed to four places in the Transvaal as being well worth the attention of companies—Spitz Kop, which, in my opinion, is the best, and covers the largest payable area. Pilgrim's Rest, the next largest, contains some payable places. Mac Mac is almost exhausted, but contains two or three places which are worth a trial, but more speculative than the others. Waterfall Creek—three claims of which are on the Lisbon farm, and two on the Berlin farm—contains the smallest payable gold area of any of the diggings, but the five claims referred to above are payable, and are, in fact, equal to a corresponding number of claims on any of the other diggings. I may remark that many other places have been tested at Waterfalls, but nothing payable has hitherto been found. It would be difficult to find samples anywhere better than can be found in the places referred to above. The following, sent to the Editor of the Independent, is from a German correspondent, and is about correct with regard to the Transvaal gold fields:—

I have also seen some gold quartz which is supposed to have come from Lydenburg district; but then, what is the good of reefers. We want poor man diggings, alluvial where one can commence with 50*l.* or 100*l.*, otherwise these news are only profitable to your "Commercianrithe" of Kimberley. One thing more, do not believe in rumours, nearly all false, not good enough for any man without heaps of capital to come up: tell your friends this. Shopkeepers trying their best to float false rumours, but what we have seen I think is nothing but humanly to try and prevent these poor fellow creatures to make a long journey like this, spend all their few pounds saved up and hard earnings for nothing, but to return back like the others. I should like to return myself, but I hear times down your parts are so bad that it is not worth while to trek back again.

I say, regardless of the opinions of any person, that the places I have named, if carefully and properly handled, are likely to develope into a permanent and profitable industry; but if they be too heavily handicapped they will only benefit a few at the expense of South Africa. The Transvaal at the present time is considered to be nothing but a great centre of bloodthirsty bandits, and the indiscriminate slaughter of blacks all around the border is enough to freeze the marrow in one's bones. It is now proposed to do the Transvaal slaughtering by contract, as will be seen from the following, which I clip from the Transvaal Advertiser:—

We hear that an offer has been made to the Government by a well-known experienced South African leader, who undertakes to finish the Mapoch war by the subjugation of that chief, for 50,000*l.* and the loot. The Government would have to supply arms and ammunition, and the contractor would find and pay the volunteers. We have not heard whether the Government have accepted or rejected this offer, or if any decision has been arrived at. But we should think there would be some difficulty in the matter of security. In the event of a failure to subdue the rebellious chief, would the money advanced to carry on the war have to be refunded by the contractor? As to the prospects of peace, we do not think the reports from the commando are very re-assuring as to a speedy termination of the war. Unless something is done quickly we may expect the war to linger on till next summer.

An old digger from the gold fields also writes to the Independent:—

Field-cornet of Lydenburg arrived to-day, commandered from every storekeeper from 3*l.* to 15*l.* sterling, and every digger 1*l.*; 20 of them had to go personally to the front.

In the face of current events, who will say that, compared to the Transvaal and its government, Coomassie is not a paradice, and King Coffee an angel. If that friend of the English (the Volksstem) is to be believed, the pious Boers and the British Resident are very much hurt because the *Mining Journal* and the South African has been so indiscreet as to refer to the latter's connection with some of the diggings. I do not know of what they complain, but it seems to me lowering to the dignity of the British Government for its representatives to enter into speculative competition with either mining or land jobbers, and if anything which has appeared in the Journal or the South African will cause Lord Derby to institute a searching enquiry into the affairs of the Transvaal, they will have performed a service to South Africa which it is impossible to estimate.

In referring to any unseemly events which happen in this place, such as drawing revolvers on each other at the Mining Board, &c., by the time my letters reach England and come back again in the *Mining Journal*, the parties have cooled down and come to their proper senses, and after two months they are ashamed to see their conduct fairly represented in print. Your humble servant has, therefore, to come in for a large share of obloquy, although at the time the events occurred all the local papers gave the same account, with much stronger comments. One thing is certain. No one can say I have not given a correct forecast of the financial affairs of this country during the last 18 months, and the same spirit will guide me for the future.—*Kimberley, Jan.* 2. CORRESPONDENT.

THE GOLD FIELDS OF THE TRANSVAAL.

SIR,—Having so recently trespassed on your valuable space, I am diffident at troubling you again; but if you will kindly allow me to notice a statement or two, in the letter of your Kimberley correspondent published in your issue of the 27th ult., I shall be obliged, and will not soon again tax your indulgence unless from urgent necessity. I am not with those who are of opinion that your correspondent is trying to throw cold water on the gold fields; on the contrary, I give him full credit for writing honestly and sincerely according to his knowledge, and the information at his command. Nor do I desire to question his valuation of particular gold mining properties on the Lydenburg district; but I will take the liberty of pointing out an error in his description as to locality of Mr. C. K. White's well-known valuable mining interests, which are situated in Eland's Drift and Hendriksdall (of which farms he is part owner) and not on Spitzkop, which is the property of Messrs. Jules Franck and Co., and if it is to this that your correspondent refers as being the best property yet discovered on the gold fields, then I may be disposed to go a long way with him in his estimate. But when your correspondent says that "at Pilgrim's Rest the old diggers have been fully compensated" I venture to demur—a few may be in that fortunate state, but how can it be fairly said that a man is fully compensated when, by unconstitutional legislation having restrospective action, he is deprived of his legally acquired property and rights, and compelled to accept 2000*l.* or 3000*l.* for a reef claim, which the concessionaire would not think of putting into the market for 50,000*l.* at the very lowest, and most probably at more than double that sum. And it is to this part of your correspondent's letter that I desire to draw particular attention.

It is well known that my sympathies are with the digger, and that I have persistently, and, I hope, consistently protested against the recission of the gold fields proclamation and the wholesale granting of concessions, thereby closing the gold fields against the honest hard-working and law abiding diggers, who have by years of toil at great cost, and under extraordinary privations and difficulties, developed these gold fields only to have the prize, when honestly and fairly gained, wrested from them by back-handed legislation, and I appeal to you, Sir, as conductor of the leading Journal devoted to mining interests, to publish the accompanying letter (received by last post) in support of my argument. It is from one deeply interested, and the letter will speak for itself far beyond anything I can say. And this is but one out of many such instances:—

Waterfall, Dec. 15.—Dear Mr. Glinister,—There has been nothing done by our concessionaires, but there has been an expert from London, a gentleman called Stuart, of Queen Victoria-street, sent out by the Syndicate, that intends buying Owen's farms. He has tested stone from all parts of my claim, and proved it to be much richer than we thought it was; the lowest he tested went 16 ozs. per ton, and the highest 1000, and I have had a much better stone than any that he tried, and can get plenty more of it if they will only leave me alone for a few months. I have the ground open again, and two men working on the leaders, but the drawback is the want of crushing machinery, which, of course, I cannot get. Don't you think the English Government would interfere if they knew how we are being robbed of our property. Here is my case. I put in a claim for 15,000*l.* The property is valued by disinterested parties at 11,825*l.*, and the Government award, by what they call a fair and equitable principle of arbitration, is 6000*l.*, and that is supposed to be final, while I can get stone out of one of eleven leaders that is worth 4000*l.* per ton, besides my water race, which commands the whole district. You may make what use you like of this, as you know it is all true. I would rather have my mining rights as before than 20,000*l.*—Hoping you are getting on aright and vigorously yourself, I remain, yours truly, W. DAVIES.

The writer of the above, an experienced digger, who after years of hand work, many reverses, and at great personal risk and outlay prospected the claim, &c., referred to in his letter, on the Waterfall Creek, Lisbon Farm. At times obliged to hide and live in caves for safety and protection from the Kaffirs who were then at war—not under Boer rule but when the "sun shone in the Transvaal"—until at last stricken with fever, and nigh unto death's door, he was compelled to leave his property, and seek medical aid; and when after long illness he had partially recovered, but shattered in constitution, and down in spirits and pocket, he returned to his claim to find himself reduced from his fancied prospect of prosperity to the position so forcibly described in his letter, and this by what is called a "fair and equitable principle of arbitration." Again, Sir, I ask, is this "full compensation;" would not "spoliation" be a better name?

City Bank Chambers. WELL-WISHER.

THE FRONTINO AND BOLIVIA GOLD MINING COMPANY.

SIR,—I observe Mr. Foakes says his retirement is in consequence of a serious difference, "outside the company's affairs," between himself and Mr. White whilst at the meeting. Messrs. Young and Co. gave a different explanation. With regard to the half-year's accounts submitted to the meeting, I pointed out two matters which, apart from any others, should have received the consideration of the new board before the shareholders were asked to adopt them—that in the present accounts only 5 per cent. of depreciation is written off the new capital expenditure, whilst, in the earlier accounts only 10 per cent. was allowed; and, again, as to the transfer of the 5710*l.* 2s. 6d. from reserve to capital, that the new board should tell us what had been done with it before we were asked to deal with it in the way proposed. As a new board was to take the management of affairs in hand, we were entitled to know from the new board whether the accounts, on the footing of which they were about to take office, were approved by them before the shareholders adopted them. The past management of the company is full of distrust. The gentlemen who supported that management are they who have put another in its place. They knew the time had arrived when its unsoundness must come to light, and so they took the matter in hand with seeming desire to remedy the state of things. Whether this has been done remains to be seen.—*Serjeants' Inn, Feb.* 1.

S. S. SEAL.

PIERREFITTE MINES, AND GREEN'S MACHINERY.

SIR,—It would be well if the shareholders in Old Shepherds Mine and the general public at large would look carefully into Mr. Green's statements and figures as to the machinery he erected on that mine, and compare them with his previous reports and speeches. Probably Mr. Green would enlighten us in a future letter as to when he found the waste heaps only contained 20 lbs. of lead per ton—was it before the dressing machinery was erected, and if not, why not?

As regards this dressing machinery it has already been fully and graphically described in the Journal, therefore it is sufficient to say it consists of a 20-inch roll crusher for jigging machines, and three round buddles, all erected under Mr. Green's supervision, and on his principle it was specially designed to work over the waste heaps of the mine, from which large returns were promised to the shareholders. But what has been the result? It is now about 40 weeks since the machinery commenced work, and notwithstanding all the energy and skill of the agents, and the ability and push of their very efficient dresser, to say nothing of the disputed 100 per cent. results of Mr. Green's dresser, they have only been able to produce 20 tons of lead. Now, taking Mr. Green's figures, the waste heaps contain 20 lbs. of lead per ton of stuff. Of this amount ordinary machinery would extract about 18 lbs. per ton (say) 15 lbs. for Mr. Green's machinery, which would show they have crushed and dressed 2987 tons of stuff for the 20 tons of lead, or taking the week at four days, allowing two days per week for repairs (as the machinery has an unfortunate peculiarity of frequently going out of repair), we find the average quantity dressed per day of 24 hours is about 18 tons 13 cwts. An ordinary Cornish crusher with 20 rolls would crush this amount in six hours, while the labourers in attendance on Green's machinery would jig it in hand-sieves in about the same time and at a much less cost. This is the result of the machinery that Mr. Green tells us "has no defect," and "is quite suitable for the work at Old Shepherds," &c.

Now, for the cost of working; the labour cost, coal, oil, &c., required to keep this machinery at work will at least amount to 15*l.* per week, or 600*l.* for the period under review; interest and depreciation on 1000*l.* worth of machinery, at 10 per cent., 77*l.*, making a total expenditure of 677*l.* for the 40 weeks' work, against which amount this excellent and perfect automatic machinery has produced 20 tons of lead, worth about 220*l.*, leaving a balance against the mine amounting to 457*l.* If this is not sufficient to prove the value of Mr. Green's machinery, I must be a little plainer next time, and show what can be done with larger plant further east.

London, Jan. 31. OBSERVER.

PIERREFITTE MINING COMPANY.

SIR,—Allow me in the absence of Capt. Rickard, who I believe is in America, to draw attention to a few facts. If Capt. Richard Davis, of Pierrefitte Mine, would refer to the *Mining Journal* of June 12, 1880, he will there see that the first parcel of 50 tons sold by Capt. Rickard realised 15*l.* 15s. per ton, the price of lead being 14*l.* 5s. per ton, whereas if he again refers to the Journal of Jan. 13, 1883, the last parcel of 60 tons sold by the present manager, and under Richard Davis's supervision and the improved jigging machinery, realised 14*l.* 17s. 6d. per ton, the price of lead being 13*l.* 10s per ton, thus leaving a difference according to figures, the first parcel 17s. 6d., which the difference in the price of lead more than accounts for. Capt. Richard Davis states that Capt. Rickard never dressed any lead above 45 per cent., whereas the new machinery erected since can dress it up to 75 per cent. Whether this is so or not the figures do not prove, as the prices show that in both cases a certain number of ounces of silver was allowed for. Perhaps he will admit that Capt. Rickard's machines had all the disadvantages referred to by him of Wheal Shepherds machines of being supplied by one of the smallest crushers known. Why not admit the fact that the improvement in the South Mine has turned the balance in favour of the new machines, which is patent to every one who read the reports? I always find if you put it in the machines you can take it out, even if the machines are a little defective. If not how could our forefathers dress the ore (good quality), the metal of which has been supplied to the country long before these patent machines were thought of.—*Jan.* 29. OBSERVER

PANULCILLO COPPER COMPANY—"A COMPARISON."

EXTRACTS FROM NOTICES TO SHAREHOLDERS.

"Including amount brought forward from previous year there will be a total of 12,050*l.* available for dividend and reserve in April next.—Jan. 25, 1882."

"Inclusive of amount brought forward from the account submitted at last general meeting, and deducting the interim dividend of 15,000*l.* on Oct. 10, 1882, there will thus be a sum of about 22,600*l.* available for dividend and reserve in April next.—Jan. 30, 1883."

The dividend in April, 1882, was 4s. per share, or 10 per cent.

The dividend in October, 1882, was 6s. per share, or 15 per cent.

The balance now available for the dividend in April, 1883, will admit of a payment of 8s. per share, or 20 per cent., and still leave upwards of 2000*l.* to carry forward.

It would appear from the above very satisfactory progress that this company, though not quite so successful as the Cape Copper, may claim to rank very high as a sound progressive investment, and buyers at 6¾ will get in less than three months a dividend at the rate of 12 per cent.—*Denmark Hill, Jan.* 31. C. WHITLEY.

THE GOLD MINES IN VENEZUELA.

SIR,—One of the anomalies of the present day is the low price of the shares of some of the companies formed in London for working Venezuelan gold mines. The sharp rise in Callao Bis has led to enquiries for New Callao shares, and these have gone up from 6s. 3d. to 15s. in the last few days. Yet New Callao shares are far below their real value. Callao Bis shares rose the other day from 5s. to 35s., on a telegram being received that a lode of rich quartz, believed to be the celebrated El Callao lode, had been cut in the property. Why, in the New Callao Mine several lodes, 5 and 6 ft. wide, with quartz showing from 4 ozs. to as high as 9 ozs. of gold to the ton, have been cut. Besides this, 1000 tons from one of the lodes, the Pinelli, are now at surface awaiting crushing machinery, which goes out by the French mail steamer in February.

By June 1 crushing will be in full swing, and it is impossible to say at what price we may see New Callao shares. A gentleman who knows Venezuela well told me last week that if it turns out that the Callao Bis manager has cut the celebrated El Callao lode the Callao Bis shares will be worth 100*l.* a piece. This is a big price. What, then, will be the ultimate value of the New Callao shares, with half a dozen lodes on the property, each lode being as rich, as Mr. Skertchly asserts, as El Callao. I consider there is a great future in store for the Venezuelan gold mines, and I hope shareholders will not be induced to part with their holdings at present prices. Before the spring is over we shall see the shares at a big premium.

J. J.

THE SILVER MINES OF UTAH, AND THE FLAVILLA COMPANY'S PROSPECTS.

SIR,—We are likely to see this spring a demand for the shares in the several silver mines of Utah known on the London Stock Exchange. Great expectations are held of the New Emma Company's prospects. By May 18 it is thought Capt. Cullen will have struck the rich ore in the new shaft in the Emma property. At the Flagstaff Mine the shaft has been sunk 200 ft. below the old workings, and levels are now being driven in the direction of the bonanza in the adjoining mine, the Vallejio; but I should like to see the shaft in the Flagstaff sunk another 100 ft. The prospects are so good that they will warrant it, and Prof. Vincent is strongly of opinion that this should be done. As to Last Chance, the mine must be worked at depth, and I hope capital will be provided to ensure further development of this mine.

But what I wish particularly to call attention to is the prospect of the Flavilla Mining Company, which was formed about two years since to work the mines formerly owned by the Chicago Mining Company. The unfortunate part of the business with the Flavilla Company was, they did not work the mines at depth. If you want to make handsome returns in the silver mines of Utah you must go to depth. The deeper you go the richer the ore. Now, the Flavilla Company are placed in this position, that they have spent all their money, and owe about 500*l.* besides; but this ought not to swamp them. What is 500*l.*? Why the property returned to the Chicago Company tens of thousands of pounds' worth of high grade ore.

The silver ore of the Flavilla Mine is far richer than that in the Richmond Mine, and I hope the shareholders will not let the mine pass into other hands, for the prospects of success are splendid. I firmly believe that if 5000*l.* were expended in deeper development of the Flavilla Mine we should soon hear of a bonanza being struck. The rock formation of the Flavilla is highly favourable to big pockets of rich ore at depth. The directors of the Flavilla Company have addressed a circular to the shareholders asking them to come forward at once and subscribe a few thousands, so as to pay off the 500*l.* debt at Salt Lake City, and provide funds for resuming work. A few months ago Mr. Walton, M.E., reported on the property, and advised the shaft to be sunk, as the prospects were remarkably good. The directors this week have sent round to the shareholders the opinion of Mr. W. S. Godbe, a mining engineer of eminence in Utah, and who is personally known to some gentlemen in London. Mr. Godbe says, writing as recently as Dec. 5 last: "My opinion is that the company's property possesses intrinsic value enough to fully warrant the necessary capital to spend—say $10,000 on the Flavilla, $10,000 on concentrating works at Rush Lake, and at least $5000 more for

working purposes. This sum, with honest and fairly efficient management should, and I believe would, lead to success, to what extent it might be hazardous to predict, but enough certainly to more than justify the contemplated outlay." Now that the mine is in such a fair way of making handsome returns I do hope that the shareholders will subscribe the necessary funds forthwith. J.

SILVER HILL COMPANY, AND THE SURROUNDING MINES.

SIR,—When I wrote you a fortnight ago I was under the impression that Silver Hill Company had not a sett to operate upon, but always understood that it had resumed the work that the Kit Hill Tunnel Company commenced, and prematurely abandoned. The Journal of Saturday last contains a letter from Mr. Buckingham, which states that Silver Hill Company has a sett of three-quarters of a mile square; and if it is situated across the silver zone or belt, I most heartily wish the adventurers the same rich reward for their labours as we are confidently expecting to reap from ours at Harrowbarrow.

Birmingham, Jan. 31. G. S. DOWLING.

UNWROUGHT MINING GROUND OF CORNWALL.

SIR,—The last generation of miners would not hear of working deep watery mines if a section of unwrought ground could be fixed on; attaining such concessions, a thorough search was made for the outcrop of veins contained within their limits. The most notable instances of outcrop may be found in the Gwennap district, starting east from the foot of Carn Marth granite range may be seen elvans highly crystalline in close connection with copper lodes, on the backs of which gossan of the richest description foretells and guides the miner; it was such an outcrop that discovered the great run of mines known as Gwennap United Mines, the lode presented omens of wealth familiar to a practical miner who sunk but a small depth (his only help being a lad), and in ten weeks obtained for his tribute part of the mineral he raised something like 1000*l.* This led on to development of ground over a mile in length eastward, for one year from June 30, 1842, to June 30, 1843, 233,627*l.* worth of mineral was sold. Tresavean also made its copper ore close up to surface, and gave a net profit of over 800,000*l.*; it dipped eastward, and held good in that direction half a mile long and 300 fms. deep. The Great Consolidated Mines (Gwennap) embrace several setts which formerly worked separately; that part called Wheal Virgin is renowned for the quantity of copper which cropped up close to the surface; in five weeks ores were raised and sold for 15,300*l.*, while the cost of raising and preparing it for market was the insignificant sum of 200*l.*, on extended development it yielded an average quantity of 17,000 tons per annum for many years, resulting in a net gain of over 700,000*l.*, from a sett about a mile long and a quarter mile wide. The history of all our mining wealth, and the success of our greatest mines, can be traced back to similar sources. The Devon Great Consols made a profit in one year of 60,000*l.* from copper ores raised from 15 to 20 fms. deep, some of which was got no deeper than the roots of the trees. I contend there are outcrops if searched for in the great extent of unwrought ground now lying idle throughout the county that will lead to results equal to any yet discovered, and to be found for less money than the public are charged for promotion money alone in some "bubble" mines. By-the-bye a sett on the east side of and embracing the Clifford Amalgamated lodes, lately taken by Messrs. Painter and Trythall, of the Bissoe Tin Smelting Works, in connection with a well-known elvan of the district, a lode has been found and opened on only 4 fms. deep; it has a leader of lead ore even at this depth of very rich quality, and I shall be much mistaken if it is not the top of a rich deposit of mineral—analogy points to it. Seeing that mines of great depth are necessarily expensive, and their very existence depend on an unusual high price of metals, or from the pockets of shareholders, it is surprising more attention is not given to new or unwrought grounds. The richest mines of the county date their existance from commencing in a small way, while the great amount of money lost has been in the resuscitation of mines that were once rich but worked out, requiring in the first place a large capital to drain them, which on being done are invariably found poor, their only chance being to sink deeper and extend the late workers' levels, and before much of this is done the capital is exhausted, the shareholders have lost their money, and Cornish mining has to take the blame which ought to be borne by those who put their money without enquiry into such hopeless concerns.

St. Day, Scorrier, Cornwall, Jan. 31. CHAS. BAWDEN.

THE EAST WHEAL ROSE MINE.

SIR,—As a shareholder to a considerable extent in the East Wheal Rose Mine, I should feel obliged if you would give me space to say a few words with reference to the property, more especially as various unfounded reports have been recently circulated which are calculated to damage the mine in the eyes of the public. None of the shareholders appear to have thought it worth while to contradict any of these statements, being probably satisfied in their own minds as to the value of the property, and therefore indifferent as to what the outside public may think of the matter. The general opinion, however, of the shareholders on the subject was, I think, plainly shown at the meeting held last December at the mine itself when they were invited to inspect the property and form their own conclusions. No one who was present at that meeting could have any hesitation in saying that the utmost confidence was shown as to the future prosperity of the mine. It is not, however, pleasant for the holder of shares in any company to hear damaging accounts of his property assiduously spread by those who are evidently interested in depreciating its value without making any effort to point out the actual facts.

It has been stated that when the mine stopped working in 1856 it did so because it was practically exhausted, and was found not to repay the cost of working. Now, Sir, I have been at the pains to make the fullest enquiries respecting the antecedents of this mine, and I have before me the authenticated Government statistics of what actually occurred both previous to and at the time of the mine ceasing to work. In addition to this I am acquainted with practical men who knew the mine thoroughly in its former career, and are, therefore, in a position to speak with authority on the subject. It appears that in 1848, the oldest authentic records I can procure, the East Wheal Rose Mine produced 5333 tons of lead ore. In the six following years—*i.e.* up to 1856—it grassed an aggregate total of 19,572 tons, after which further working was suspended owing to pecuniary difficulties. These arose entirely from bad management, and from no fault whatever of the mine. No less a sum than 30,000*l.* was expended on sinking a single shaft, the site of which was so badly chosen that the ground around was continually falling in. Difficulties of this nature, as any practical man knows, would swamp any mine, and the natural consequence followed—that both the working capital and profit were swallowed up by this new shaft. As an instance of the ruinous nature of this ill-advised undertaking let us glance at the profit made by the mine during only the portion of the last year it was worked the whole of which profit was absorbed. I find that in 1856, 2691 tons of lead were grassed, and 53,280 ozs. of silver, giving a total value of 52,000*l.*, which large sum of money was wasted on attempting to sink an impossible shaft. For the mine to produce ore of this value during the last year it was worked certainly does not give one the idea of an exhausted concern.

During the period of the great prosperity of the East Wheal Rose Mine, prior to 1856, the largest portion of the ore which was grassed was obtained from the celebrated Middleton's lode. This has just been cut in the 20 fm. level, and again lower down showing upwards of a mile of unwrought ground. The value of this discovery can scarcely be overrated, and it is without doubt one of the most important made in Cornwall during the last quarter of a century. Several other lodes have also been cut into, and the first parcel of ore has just been sold very highly silverised. This will, I understand, be followed by regular and increasing sales, and the shareholders may expect with every confidence to see their mine shortly produce from 200 to 400 tons of ore per month. The mine possesses the finest engines in the county, and at the present moment has a balance in the bank of over 23,000*l.* The shareholders to a man—of course I do not mean speculators, but *bona fide* investors—are, I am confident, perfectly satisfied with their investment, and are certain to see the merits of the mine very shortly take practical form in the shape of ample and regular dividends. It is rather hard, however, for us in the meanwhile to hear our property disparaged and spoken of as if it were of no value, without anyone attempting to show the plain facts of the case side by side with the unfounded statements which have been promulgated. A SHAREHOLDER.

Jan. 31.

EAST WHEAL ROSE, MOUNTS BAY, TRESAVEAN, AND OLD SHEPHERDS.

SIR,—Some remarkable and fallacious statements being in circulation with regard to these mines I should like to make a few observations in reply. The entire article which contains them is tinged with spite from beginning to end, and was evidently written for the sole purpose of frightening weak holders, and inducing them by false representations to part with their shares, and thus produce a panic by which those who make these misleading statements would, no doubt, take good care to profit. The writer of the article in question admits that the attempt to put new life and capital into these valuable properties has already been partially successful, notwithstanding the fact that the new projects were only started some 22 months since, and that the difficulties to overcome in respect to draining, clearing, opening out the different lodes, erecting machinery, &c. were simply stupendous.

There are not four other mines in Cornwall that can show such a satisfactory amount of work accomplished, and giving such good results in the same amount of time, and at such a comparatively small cost as that done at these cruelly abused properties. The writer seems to overlook or ignore the fact that these mines have already had a wonderful history, and returned some hundreds of thousands of pounds in dividends, and that the discoveries recently made, to those who know anything about the matter, promise even greater success in the immediate future. Moreover, the writer, who, it will be most palpable to the ordinary observer, has no interest except to get at the truth, makes a great point of the cost of the various properties; but putting aside any question of bonuses to vendors or promoters, I venture to say that the sum of 152,000*l.* was not too much to pay for four mines such as those referred to. Each company is now selling ore at good prices considering the low state of the market, and as the lodes are opened and more stamps erected the returns per month will be such as even to astonish your sceptical critic, and in the course of six months not only will the shares command a high figure on the Stock Exchange (for an official quotation will be given whatever may be said to the contrary), but the shareholders will be in receipt of handsome dividends. These are my predictions, which will I feel convinced be more than verified by results, and I therefore entreat all *bona fide* shareholders not to part with a single share until the mines have entered the Dividend List. If they sell at present prices they will simply be playing into the hands of a clique who are doing their utmost to damage these properties.

The writer of the article prides himself on his marvellous astuteness in securing copies of the accounts, apparently being ignorant that all the shareholders had copies sent to them, and it could not therefore have been very difficult to obtain the documents on the possession of which he takes so much credit. In conclusion, I beg to state that I am interested to a considerable extent in each of these mines, and being so confident of their ultimate success I shall not part with a single share till they show a very handsome premium.

Manchester, Jan. 27. BONA FIDE.

POLCREBO TIN MINE.

SIR,—The recent improvement in the 30 from engine-shaft at the deepest point undoubtedly has taken the shareholders by surprise, as it is only a few weeks since operations commenced to develope the mine. Previous working has been in clearing adit and erecting machinery, forking, clearing shafts and levels; and now a large masterly lode is discovered 6 ft. wide, and now large stones of tin have been taken out. From the strong appearance and character of the lode it will open up a valuable section. This is a very important discovery, as it is in new and whole ground. It is the opinion of the miners in the neighbourhood that Polcrebo will be the leading mine of the district, and be the means of starting other mines. Highburrow shaft is watched with great interest, being the centre shaft. It is well known there are two points almost a certainty of success which have been followed by ancient workers as deep as water would allow them. When a new level is under the old workings you may expect large and profitable returns.—*Jan.* 31. R. A.

SILVER NEAR CALLINGTON—THE PRINCE OF WALES MINE.

SIR,—A communication has lately been forwarded to me that the silver lode which is known to exist in the Prince of Wales Mine lies between the two rich courses of silver ore in the adjoining Wheal Fortune, but now named Birmingham and Harrowbarrow Silver Mine. The two shafts in this adjoining mine are designated Bennetts and the Queen's shaft, and they are about 150 fathoms apart. In the former, which is well drained to a great depth, the ore is visible to the naked eye in several places, but in the latter the rich silver branch still remains buried in consequence of an accident to the shaft. In reference to the value of this discovery my informant adds that success to them means success to the Prince of Wales Mine. I will also remind the shareholders that there are parallel lodes of copper and tin in the north part of the sett, and that in consequence of the urgent advice of an experienced captain a cross-cut has been driven some distance, which can be resumed any day when it is convenient to do so. To return to the silver department—it is not unreasonable to expect one or two good discoveries very shortly at each end of the silver zone. At any rate the fine lode lately seen at Langford cannot fail to encourage all the managers in the district to lose no further time in putting their shoulders to the wheel. AN OLD AMATEUR.

Jan. 31.

SHROPSHIRE LEAD MINES DISTRICT.

SIR,—Surely the principal parties in the East Roman Gravels Mines Company will not allow such a valuable sett to starve for the sake of a little help to tide them over the present season, a little falling off in the returns, and the low price of lead. We have not lost faith in lead mines yet, and we think better prices are near at hand. East Roman is on the self-same range of hills as the Roman Gravels, and if they will explore on the Wood lode, which has always been considered the main lode of their sett, and has been exceedingly rich near to surface like the Roman lode, and, like that lode, it also is poor for the last length or two of the shaft; but it is the almost universal opinion amongst miners and agents here that if the Wood shaft was deepened 25 fms., or less than that, a rich mine would be found. The said shaft is in the midst of what may be termed a network of lodes, and we have not the least hesitation in asserting, and we do it from an intimate knowledge of this and the other mines around, that there is not a lead mine sett in the district with finer prospects than East Roman Gravels. MINER.

THE OWEN VEAN AND TREGURTHA DOWNS MINES.

SIR,—While in the neighbourhood of Marazion I visited some recently started mines, which for a number of years have been regarded as an excellent field for the investment of capital. They were formerly worked separately, but are now amalgamated as the Owen Vean and Tregurtha Downs. I found the company preparing to develope these properties on a very extensive scale, having a very powerful pumping-engine erecting, with pitwork of sufficient size to carry their workings to a great depth when they desire to do so. It is believed that, from virgin ground standing between the two mines, as well as to the north and westward of Tregurtha Downs, they can pay excellent dividends, while the old mines are being sunk below their present shallow depth of about 60 fathoms, which in Cornwall is considered so shallow as to be a mere scratching of the surface. When these mines formerly worked they were very productive of both tin and copper, and paid considerable profits, though the price of the former was little more than half its present value, and operations were ultimately suspended for the want of proper machinery.

The surrounding district abounds in evidence of mineral wealth, though the working of the mines was never very vigorously executed or prosecuted to above half the depth at which the richest mines in Cornwall have proved most productive. Everything justifies the belief that a very rich return will reward the shareholders, and this is the feeling throughout the locality. The works are being laid out splendidly, and economy and energy seem the motto of the company's agents. I shall be much surprised if during the present year these mines do not yield considerable profits, and gradually increase as the lodes are developed. I do not think Cornwall presents a fairer field for mining enterprise than this.

Duke-street, Adelphi, Feb. 1. MINING INVESTOR.

WHEAL COATES.

SIR,—I share with many others the surprise which is excited because of the low price of these shares, and I was glad to notice that at least one dealer has the good sense to advise their purchase. The same dealer has been most successful in his recommendations in the past; and no wonder, since he has a standing of 30 years in the City of London, and evidently has good information. I have bought largely of these shares and will buy as many more; and we shall see who will have the best of it. WELL INFORMED.

REPORT FROM CORNWALL.

Feb. 1.—Another dull week to add to the unexciting depressing category of its predecessors, and no signs of a change. We must look outside Cornwall for the prospects of the future; there is scant encouragement within. Even the casual shifting of the tin standard seems to have very little direct interest just now, when there is so much to complain of all round, and when it is rumoured that several mines are not looking so well as is their wont. If ever there were times which should make mine managers and mine committees hunt out the weak points in their respective concerns these are they, and we hope that the pressure will cause good use to be made of the opportunity.

The members of the Mining Institute have this week had the good fortune to listen to an address on "Mine Surveying" by their President, Mr. Henderson, than whom there is no more competent authority in this highly important and interesting subject. It is hardly needful to say that the lecture was alike worthy of the topic and of the lecturer. Mr. Henderson wisely availed himself of the opportunity to explain the advantages of his "double-sight" dial, a form of the instrument which he was led to construct as the result of his wide practical experience.

Divers have been successfully utilised lately in looking after some pitwork which was under water at Phœnix United. Like almost every mine of any consequence in the county, Phœnix has suffered severely from the heavy rains, which so increased the water that it rose above the plunger hole, which is 200 fms. from the surface. After the plunger had been working some time under water it was discovered that it required to be packed, and the question arose as to how the work was to be done, there being several feet of water above the top of the pole. The manager and agents held a consultation, and decided to engage the services of a diver from Plymouth. This course was generally approved, and was accordingly adopted. At first one diver and his assistant came on the mines, and prepared themselves to perform a piece of work underground which they had never before seen. They, however, made an attempt in a vigorous manner, knowing that if their efforts were successful much credit would be reflected on them, as it was the first occasion divers had been thus engaged locally in mining operations. Much interest was manifested in their descending the ladders and in their procedure, it being the first time they were underground. They proceeded to the 200 fm. level, where preparations were in a short time made, and the diver started. Prior to commencing every precaution was observed, and he was informed exactly where to stand. The diver succeeded in packing the pole, and a signal was given to the engine-man to work the engine. It started, and the plunger worked in a very satisfactory manner all night, but in the morning the shaftmen ascertained that the pole had failed, and wanted to be attended to again. It was accordingly again attended to by the divers, and with a similarly satisfactory result. It may be regarded, therefore, as having been clearly proven that divers can be made a most important adjunct to mining work in the West. To work under such conditions requires much skill and no little pluck; but the occupation of a diver is one thoroughly calculated to develope a man's energies and to give him plenty of courage, and the divers at Plymouth, being largely engaged in work for the Government, have enjoyed abundant experience.

An excellent story is told of a worthy Englishman who went into a law court one day, and was so bewildered by the contradictory testimony he heard that he declared that in future he would never listen to evidence again, but give his judgment without. There is always so much uncertainty about the invention of any useful process or machine that it is perhaps not surprising that the suggestion should be made—practically, if not in words, "all or none." Already a little difficulty in connection with the Trevithick Memorial has been created in connection with the steam blast, and now in all good faith the claims of Capt. Vivian to a share in the invention of the locomotive with Trevithick are put forth as entitling him to a part in the proposed memorial. If the point is seriously attempted to be raised in all likelihood the whole memorial will fail, much to the satisfaction of the upholders of the Stephenson tradition. But while it is quite right that the part of Capt. Vivian in this invention should be admitted, without enquiring perhaps too closely into its exact limits, the fact to be borne in mind is that the memorial is to "Trevithick, the engineer," not to "Trevithick, the inventor of the locomotive," which, after all, was only one invention of his out of very, very many. We regard Trevithick as beyond all question the greatest engineer that Cornwall has produced, and not only so but as probably the most inventive genius the kingdom has ever seen. It is for his work and career, and not for one portion of it only, important as that portion may be, that this memorial is proposed, and that being so it will be well to avoid the introduction of all differences on points of detail, however correct in themselves or however kindly meant. A Trevithick memorial is not only possible but certain, if "one and all" aid, and good will result thence to all future generations, but divide its interest and little or nothing can be hoped for.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Feb. 1.—The Coal Trade is without much change on the week. From the Bloxwich district the demand for forge sorts is reported to be very fair, and the pits making on an average five days a week. The report is circulated in some quarters this week that some forge coal-owners have sent customers notice of a 6d. drop, but the report is not yet verified. In the Iron Trade business is unsettled. There was a rumour in Wolverhampton yesterday that those marked bar houses who have hitherto been quoting 8*l.* were about to declare a 10s. reduction, bringing prices to the 7*l.* 10s. level of the New British Iron Company and Phillip Williams and Sons. Traders hesitated, however, to give full credence to the report until they should see the state of trade to-day.

On Change this afternoon yesterday's report as to the bars, sheets, plates, and hoops of those firms who had previously been selling on the basis of 8*l.* for bars was officially confirmed, bars thus become 7*l.* 10s., sheets and plates 9*l.*, and hoops 8*l.*, with 12s. 6d. extra for Earl Dudley's brands. Firms previously quoting 7*l.* 10s. made no change. Hingley's best rivet iron 8*l.*

On Wednesday a fatal accident occurred at the Ocker Hill Colliery, near Tipton, belonging to Messrs. Addenbrooke. A miner named Geo. Richards was working at the foot of the shaft when a tub came down suddenly, and striking him between the shoulders severed his head from his body.

In North Staffordshire the coal trade is not an average for this time of the year as regards house qualities and merchants have still stocks on hand which will render it unnecessary for them to buy extensively for at any rate some little while. Manufacturing fuel is

selling fairly, but there is considerable complaining at the low prices which have to be accepted, no improvement in this direction being observable. The output of the blast-furnaces is going steadily into consumption, not alone in the Staffordshire and Birmingham districts, but also among consumers in Lancashire. Stocks in makers' hands are not large, and there seems no probability of their being augmented. Prices, therefore, keep tolerably firm. The rolled iron trade is still without that activity which had been expected. Purchasers prefer for the present to buy only from hand to mouth, extensive orders being decidedly exceptional. Still on export account some merchants are demanding hoops and bars with an amount of briskness which was not observable a fortnight ago. Heavy plates, too, are in demand from some of the centres. Prices generally favour consumers on the basis of from 7*l.* 10s. down to 6*l.* 5s. for bars, according to quality and size of contract.

Examination for Mine Managers' Certificates.—The annual Government examination for mine managers' certificates for the district was commenced on Monday, in the Council Chamber of the Town Hall, Wolverhampton. The examiners are Messrs. Wm. Fairley, Beaudesert, Rugeley; John Williamson, Cannock and Rugeley Collieries, Hednesford; and Jonah Davies, C.E., Parkdale, Wolverhampton. The secretary is Mr. W. Blakemore, F.G.S., Heath Town. There are 12 candidates, all from the South Staffordshire district. The subjects are—1. Chemistry and ventilation. 2. Mechanical engineering. 3. Surveying. 4. Practical mining. The examination will be completed this evening, when the examiners' report will be forwarded to the Home Office, and certificates granted in accordance with its recommendations. During yesterday the Mayor of Wolverhampton (Alderman F. D. Gibbons) and the Assistant Inspector of Mines (Mr. W. B. Scott) visited the examination room. The Chief Inspector of Mines (Mr. J. P. Baker) was unable to be present owing to illness.

TRADE IN SOUTH WALES.

Feb. 1.—The pressure of business at the Cardiff Docks has been considerably relieved by some of the ships having been sent to Newport and Penarth to load with Cardiff coal on Cardiff account. Orders, however, cannot be executed for prompt delivery except at higher prices. The want of sufficient accommodation at Cardiff is felt more and more every day, but that want will be considerably relieved when the new dock is opened, the first sod of which was cut by Lord Bute on Wednesday last. On the previous day Sir George Elliot, M.P., cut the first sod of the Alexandra (Extension) Docks at Newport, so that on two rivers we shall have probably sufficient accommodation at both ports. The amount sent away last week was 116,796 tons foreign from Cardiff and 21,818 coastwise; Newport, 26,734 tons foreign and 13,625 coastwise; Swansea, 22,322 tons foreign and 9502 coastwise. When these amounts are supplemented by about 20,000 tons of bunker coal at Cardiff, 8000 at Newport, and 5000 tons at Swansea weekly, which are not reckoned in the returns, it will be at once apparent that a large business is being done. Small steam coal is quoted firm, at from 5s. 3d. to 5s. 6d. per ton, while large coal stands at from 9s. 3d. to 11s. 6d., according to quality. This month and next will test the capabilities of shippers to the utmost.

The iron and steel trades are not so active as they have been, and as prices have touched their lowest point, any attempt to further depress them will probably result in a stoppage of some of the furnaces. Only one small parcel was cleared from Cardiff last week, but at Newport 1835 tons were sent to New London, 1750 to Ancona, 1000 to New Orleans, 889 to Santos, 238 to Tampico, and 336 to Trinidad. Iron ore is not in such great request, and as large quantities are coming in a depreciation in prices may be looked for. Cardiff has received 15,829 tons from Bilbao, and 4214 from other places; Newport, 18,590 tons from Bilbao, and 6380 from other places. There are now about 18 furnaces in operation at Cyfarthfa making merchant iron, but the steelworks will not be ready for some time.

Mr. H. B. Moreton, of Cardiff, has brought out an invention for securing rails in the chairs used on railways. The usual manner of securing rails on railways to the chairs upon which they rest is by the insertion of a wooden block, or key, which is hammered in until it fills up the space between the two pieces of ironwork, and holds the rail tightly in its place. Owing to the vibration of the rails when a train passes, and also to the effects of the weather, these wooden keys often become loose; indeed, it is a common occurrence to see men inspecting their condition, and urging them in with a long-handled hammer. A new form of metal key has been introduced by Mr. Moreton with a view to effect a more permanent and safer grip upon the rail. This key is of a tubular shape, slotted from end to end, and having a tongue which can be bent over against the chair.

Tin-plates are in good demand, and as prices realise from 16s. to 17s. 6d. per box for coke-mades a remunerative trade is being done. Charcoal-mades realise from 22s. to 24s. per box at Liverpool. Tin has advanced 10s. per ton, and stands at from 92*l.* 10s. to 93*l.*

Mr. Henry Spain, of Coleman-street, London, has been appointed receiver and manager of the Castle Steel and Iron Company, which is now in progress of liquidation.

At the inquest on the boiler explosion at Hirwain, Mr. T. E. Wales, the Government Inspector of Mines, said he had examined the boiler. Its original thickness was ⅜ of an inch, the working pressure of which would be 60 lbs., and the bursting pressure about 360 lbs. Some of the plates were reduced to ⅛, which, if new, was only equal to a resistance of from 18 to 20 lbs., and therefore quite unable to stand a pressure of 40 lbs. The usual mode of examination is by striking the plate and judging of the thickness by the sound, but the value of such examination depended upon the knowledge and experience of the person making it. The examination made in the present case must, in his opinion, have been made carelessly, or by an inexperinced person, who was unable to detect the thickness of plate. He would urge colliery owners to insure their boilers in one of the insurance companies, and thus ensure a periodical examination by persons conversant with the theory and practice of the erection and management of boilers.

At the meeting of the Swansea Bank, Sir J. J. Jenkins, M.P., said that for some years past the bank had been gaining in strength and position, and the present dividend (8½ per cent.) was the largest they had ever declared. He thought it would have been impossible to make more satisfactory progress than they had done. If large premiums had been offered, greater risks, he believed, would have been run. Probably the risks would more than have counterbalanced the chance of a greater dividend. Looking at the trade in that district, and generally throughout the country, he did not think there was anything to lead to the belief that there would be any violent fluctuations during the next 12 months. There was a very large and increasing consumption of metals in this country, whilst the trade in the colonies was open to much further development. Those engaged in the iron and steel trades in this country must look to the colonies rather than to the United States.

Mines Managers Certificates.—An examination for the granting of certificates of competency under the Mines Act of 1872 was held at the Town-hall, Cardiff, for the South Wales mining district on Jan. 23, 24, and 25 before the examiners appointed by the board—Messrs. W. Adams, Cardiff T Forster Brown, Cardiff; and Evan Daniel, Swansea; and the secretary of the board, Mr. C. Henry James, Merthyr Tydfil. Thirty-two candidates presented themselves for examination, and the examiners will report to the Home Office that the following are qualified to receive certificates:—William Habakkuk, Swansea; S. Hewitt, Sheffield; J. Hinton, Abertillery; Howell Jones, Dowlais; Thomas Jones, Ebbw Vale; William Jones, Dowlais; H. H. Kirkhouse, Hirwain; E. S. Plummer, Glyncorrwg; J. D. Thomas, Rhymney; Caswallon Edmunds, Ystrad.

New Invention for Winding at Collieries.—Messrs. Thomas Jones and James Griffiths, of Aberavon, have patented an invention by the use of which colliery proprietors will be able to do away with the use of ropes in working the cages containing the trams of coal up the shafts. The use of ropes for raising and lowering the cages cost at some of the South Wales collieries as much as 900*l.* a year, and at others the cost varies from 300*l.* to 600*l.* The attention, therefore, of colliery proprietors sinking new pits—and those who have pits already sunk—might very wisely be directed to this invention. Though a trifle more costly in the first instance, the patentees claim that by the adoption of their patent a great saving would be effected in the end. The arrangement of Messrs. Thos. Jones and James Griffiths would cost 7*l.* per yard in the shaft; the present arrangement for raising and lowering costs 5*l.* per yard. Messrs. Jones and Griffiths's system would be cheaper above ground. The invention consists in the employment of pinion wheels carried at intervals in a vertical framing placed in the shaft of a mine, which pinion wheels gear, with racks secured to one side of each cage, whereby when the pinions are rotated the cages are raised and lowered. By this invention the disadvantages obtaining under the rope system are avoided—including, of course, the severe tear and wear of rope. In the event of the engine, from neglect or other cause, not having been stopped at the proper moment, the cage at the mouth of the shaft travels upwards until its rack is out of gear with the uppermost pinions, against which it then rests until such time as the engine is reversed, when the rack again takes into the pinion, and the descent of the cage commences. In like manner, the rack of the cage at the bottom of the shaft passes out of gear with the lowermost pinion, and the bottom of the cage rests upon and deflects a spring secured to the foundation frames.

South Wales Daily News.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Feb. 1.—The attempt on the part of the colliers of North Wales—as in Yorkshire—to restrict the output of coal by endeavouring to foist upon their employers a system of eight hours a day and five days a week, will not, I think, succeed. The masters met in Wrexham last week and resolved to resist any such plan. The representatives of the men also met in Wrexham on Saturday, but they separated without coming to any decision on the matter. A new brick and sanitary ware works is about to be started near Ruabon to work the red clays and marls of the Permian strata. Mr. Bryan, who has been for many years with Mr. J. C. Edwards, of the Tref-y-nant Works, takes the management. The company is a Liverpool one.

Let us take a short stage on our journey around the coast of Wales. As we leave Carnarvon we pass alongside the quay, with its vessels loading with slates, green, blue, purple, mottled, and striped. Looking back as we reach the head of the harbour, we get a fine view of the whole port, crowned by its massive castle. A little further on the Llanberis line branches off to the east and runs up into the heart of the great slate quarries there. Only, however, the slates from the smaller quarries are brought over this line; those from the Dinorwic quarries of Mr. Assheton Smith being taken direct by a private line to Port Dinorwic. Our first stop is at Dinas Junction, where the North Wales narrow gauge line comes on and there is a slate depôt. The slates from the quarries grouped about Moel Tryfaen, which I described some weeks back, are all brought here and transhipped for Carnarvon port, or for transit by rail inland. So also are those from the Bettws Gurrnon Valley, including the blue slates from Glanrafon quarry. The next junction is Pen-y-Groes, where the Nantlle branch comes in. A ride of a mile takes us up into the heart of the slate quarries of this valley—Talsarn, Dorothea, Cornwall, Algwyn, Pen-y-Orsedd, Pen-y-Bryn, and others; and on the other, or south-east side of the valley, we see a long range of quarries stretching to beyond the village of Llanllyfni. These are hardly in so forward a state of development as those I have named; but three or four of them are rapidly and successfully progressing, and the others, with sufficient capital and intelligence, will follow. Further south-east, where these Cambrian slates—which stretch from near the Menai Straits between Aber and Penmaenmawr to this point—dip under the Lower Silurian, is the Toel Clynnog Slate Quarry, which is now producing very nice blue slates. I fear my teetotal readers will blame me for always leading my companions in these travels to a public-house, but it is a good thing to know where in such travels you can be well taken care of. So for the present we will return two miles to the Stag Inn, Pen-y-Groes, where we shall probably meet with slate quarry men and managers, although to a very limited extent, for both are thrifty and home loving.

TRADE OF THE TYNE AND WEAR.

Jan. 31.—The steam coal-works north of the Tyne continue to be fairly employed, and the prospect is good, judging from the orders in the market from the Mediterranean, Alexandria, and other foreign markets. No change has taken place in the value of best coal of late, but second-class and small steam coal are, however, a shade easier at present. Gas coal is still in strong demand, owing to many urgent requirements for the London and Continental markets. Coal and coke shipments have again been large at Tyne Docks—100,000 tons for the week. The house coal demand, owing to the weather, is much easier, and trade has fallen off both in the Tyne and Tees. Prices are, however, unaltered. The occurrence of the spontaneous combustion of coal at sea on long voyages has long engaged the attention of the trade; many theories have been started and means adopted to minimise the chances of such occurrences, but all apparently to no purpose. Free ventilation has been tried as far as possible by means of boxes; it is now proposed to exclude air altogether. This will be difficult to effect in large sailing vessels unless air-tight compartments are provided. No doubt steam and other coal shipped in a wet state will always be liable to spontaneous combustion, and means ought certainly to be adopted to keep it as dry as possible. In wet weather the coal is often saturated in the passage from the pits to the shipping place, and this should be prevented by the use of covers by the railway companies. The Pelan Main Coal Company have adopted this practice. All their gas coal is protected from wet during the passage to the shipping place. The railway companies ought certainly to adopt this precaution, and the coal-owners should insist on their property being protected from wet, otherwise they are sure to be great losers eventually. The Brass-side and Cocken Collieries, belonging to the Earl of Durham, have been closed, owing to the exhaustion of the seam of coal. A dispute has taken place between the masters and miners at the extensive coking collieries of Messrs. Strakers and Love, at Brendon. The dispute, which is a serious one, has arisen respecting the discharge of some of the officers of the Miners' Union at those works, and most of the men have given 14 days' notice to terminate their engagements. There is, therefore, a danger of the works being stopped, but this may possibly be averted. According to the latest accounts the dispute is likely to be adjusted. Mr. Patterson, one of the agents of the Durham Miners' Union, has been appointed by the owners and miners to arrange the matter, and it is likely that his efforts will prove successful.

A strike is likely to occur at the Ashington Steam Coal Works, North Northumberland. The cause of the dispute is an attempt on the part of the managers to reduce the rate of wages of the "putters." The "putters" bring the tubs from the hewers at the face of the coal to the station, and those putters received notice some time ago that a reduction of 3d. per score would be made, and they, not being willing to accept this reduction, referred the matter to the joint committee of the owners and miners, and they awarded a reduction of 1d. per score, which the putters refused to accept.

The sliding-scale arrangements in the Northumberland and Durham coal trades continue to attract much attention. In Northumberland the miners appear to be disposed to ask for an advance of 10 per cent., or for some change in the basis of the sliding-scale. At present the scale is founded on the average price of coals of all kinds taken at the end of each three months, and compared with the rate of wages at a certain date. It has been proposed by the men to take the average price of round coals only, leaving small and other coals out of the account; but this would certainly be equivalent to making a considerable advance on present rates, and it is difficult to see how the trade can afford any advance of consequence at present. There has been little advance in the value of this coal during the past few years. In Durham, as we anticipated, the miners will get an advance of 1½ per cent., as the result of the return of the average sale price of coal during the three months ending in December 1882, which shows that the net average selling price of coal for that period was 4s. 11·34d. per ton. The wages are calculated upon the standard wages of November, 1879. On the whole, the miners in this district do not appear to favour very strongly the proposition to restrict the output of coal, although this course has been advocated by one prominent official of the Durham Miners' Union, Mr. Crawford. We do not see any reason to suppose that such a course would benefit in the slightest degree the miners or owners of collieries here. The best policy to pursue is, no doubt, to accept all the employment that the trade will afford. Any serious reduction in the output would only result in encouraging the trade of other districts and countries, and ultimate injury to the trade in this district.

The iron market at Middlesborough, on Tuesday, was very dull, and the feeling evinced was less favourable than for some time past; buyers are extremely cautious; makers, however, generally, are not prepared to commit themselves forward at less than full rates. Shipments have not been large of late. One or two "bear" sales at low prices are mentioned. Merchants are selling iron No. 3 at 42s. 3d. Warrants are 41s. 9d. Messrs. Connal's stock is 90,446 tons, a decline upon the week of 1890 tons. The shipments of pig-iron have been very disappointing, and the total deliveries for the month much below what was expected, and will probably be about 57,000 tons. The decline has been entirely in the Continental trade, the deliveries to Scotland having been good. The shipments of pig-iron for the last week averaged 1000 tons per day, but the stormy weather has retarded shipments. In manufactured iron there has been a quiet trade; the shipments of iron and steel have, however, been over 5000 tons for the week. The expectation that a considerable enquiry would spring up for ship-plates has not yet been realised. There is no change in prices, but late rates are very firm. Ship-plates, 6*l.* 7s. 6d.; bars, 5*l.* 17s. 6d.; puddled bars, 4*l.* net. The Board of Arbitration holds a meeting at Darlington, on Wednesday, to consider the revised rules and the regulation of wages.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Feb. 1.—During the early part of the week the heavy rains were the means of preventing operations being carried on at several of the lead mines in Derbyshire. The water under such circumstances makes its way into the mines, and even gets into the workings, for at many of them they are quite open to all climatic influences, there being no covering overhead, work being carried on in the old manner, without machinery or modern appliances. This is the result of the mining laws, which allow of miners or others opening out ground and merely digging for the ore, or at least in anticipation of meeting with it. The consequence is that in the usual annual returns we find that some so-called mines have only yielded some 8, 10, or 12 tons of ore, and in some instances less. The coal mines have not been so affected, although the roads to some of them have been nearly impassable. The house coal trade is quieter, and most of the collieries have as much as they can do to keep their men fully employed. Not much has, therefore, been heard with respect to limiting the production, and there is now every appearance that before many weeks have elapsed the state of trade will be such that there will not be more than four or five days at most for the men all round. As I stated would be the case, the colliery proprietors have refused to agree to the men working four days a week, on the ground that it would be alike injurious to them and their workpeople. They have also refused to meet a deputation for the purpose of discussing the question. The only course, therefore, left for the men is to give notice to dissolve the existing engagements, and endeavour to enter into new ones. This would in many instances occupy about five weeks, and by the end of that time, as before stated, there will be no necessity for compelling the employers to allow the men to work the five instead of six days weekly, for it will become a positive necessity.

As it is the threat of limiting production has in no way influenced the trade nor prices, and coal is now cheaper than it was at the close of last year, and considerably less than it was three or four months ago. Taking the London market, prices are low for the time of year under ordinary circumstances, and there is now every appearance that they will gradually decline. The best Silkstone coal at the pits can be bought at from 9s. to 9s. 6d. per ton, and second qualities at from 7s. 6d. to 8s. per ton, and some 1s. per ton less. Steam coal has not improved much of late, although a full average tonnage is consumed at the ironworks, and the railway companies take a large quantity. The latter, however, are favourably off, for their contracts have been taken at a low price—about one-half of what they were 10 years ago, whilst they now charge the same carriage rate for coal that they did then. Applications for a reduction of the rate have not been entertained, but it is understood that another effort will be made before long to get the different companies to come to an arrangement by which the rates from the various coal and iron districts will be lowered if only 6d. per ton. The iron trade of Derbyshire is in a tolerably healthy state, especially as regards pig, and the foundries are looking livelier. At Dronfield active preparations have been made for the removal of the works to Moss Bay, near Workington, and it is expected that several of the tradesmen will follow them.

In Sheffield business is good all round, despite the fact that one or two of the lighter branches are not quite so active as they were, but this is only a temporary decline. Large quantities of both steel and iron are now being absorbed at the Atlas and Cyclops Works for the heavy plates which are in brisk demand, and the mills are likely to be kept running on them to their full power for months to come, in all probability to the close of the year. Bessemer steel is also in increased request, and, in addition to the large quantity which is required for rails and railway materials, there is an increased demand for certain qualities of cutlery and tools. More is also being done in crucible steel, and a good deal has been sent to America of late, for the makers in that country are unable to make special qualities, and have to import them from Sheffield. The cutlery houses, especially those engaged in the best qualities of table and fancy knives, have been doing well, whilst there has been increased activity in the production of sheep-shears for exportation. Mining tools have been in better demand and the engine-works and machine shops have also been well employed. At the foundries work has been better since the opening of the new year, more particularly in heavy work, as ore-crushers and pulverisers, coal washers, &c., and there has been a better enquiry for gas and water pipes, palisadings, ranges, and grates.

The coal trade of South Yorkshire has undergone no change of late, the trade being just sufficient to find full employment for the miners. The Mitchell's Main Foundry Company has gone into liquidation, the Wakefield and Barnsley Banking Company being creditors for about 15,000*l.*

The Iron Trades and the Employers' Liabilty Act.—By a scheme of mutual insurance the members of the Iron Trades Employers' Association, which includes master engineers, shipbuilders, and iron and brass founders throughout the country, have for the last two years covered themselves against claims made upon them by their workmen under the Employers' Liability Act of 1880. The results of the two years' working of the scheme afford a satisfactory indication of the comparative absence of dangerous risk connected with employment in the iron and engineering trades, and of the general care bestowed to secure the safety of workmen, which is rendered imperative by the regulations of the insurance. The basis of the rates for insurance was, in the first instance, fixed after complete statistics as to accidents had been privately collected throughout the various branches of the trade, but notwithstanding that a very low scale—more than 300 per cent. below the rates asked by some of the regular insurance companies—was fixed. The association, after two years' experience, find the immunity from serious claims under the Act such that they are enabled to reduce their original rates by something like 50 per cent. As illustrating how small the actual risks in connection with claims under the Liability Act upon employers in the iron and engineering trade have, by actual experience, been proved to be, it may be stated that it has been found possible to provide against all claims by men working in

machinists' shops only at an annual premium of 1s. 3d. per cent. on the wages paid; engineers, founders, millwrights, tool-makers, locomotive-makers, marine engineers, boiler-makers, &c., at 1s. 9d. per cent.; and shipbuilders and ironworkers on ships and shipbuilding yards only at 2s. 3d. per cent. on the wages paid.

Meetings of Public Companies.

THE ELECTRO-AMALGAMATOR COMPANY.

The statutory meeting of shareholders was held at the Terminus Hotel, London Bridge Station, on Friday, Jan. 26,

Mr. W. J. TANNER in the chair

Mr. HENRY BECKWITH, jun. (the secretary), read the notice calling the meeting.

The CHAIRMAN having described to the shareholders the amount of work that had been done since the formation of the company in getting the business in order for practically treating quantities of ore, by erecting a gas engine, crushing machine, riffle table, dynamo machine, and by transacting various other matters that were necessary, said—I will now, gentlemen, say a few words as to the patent itself. When the company was formed we had a conference with Mr. Aston, Q.C., in order to settle the final specification, and as it was vacation time we were fortunate enough in having an unusually long consultation, and after going into the matter fully, Mr. Aston was perfectly satisfied as to the validity of the patent, subject to its not having been anticipated, a matter to which we have given our full attention by having the Patent Office thoroughly searched. One of the chief charms about this patent is its simplicity, which consists of the application of well-known agencies for a particular purpose, and in a particular manner, which can be adopted at a remarkably small cost. From a scientific point of view the invention must carry out the objects for which it is intended, and from the scraps of knowledge I have been able to patch together, I think I shall be able to show you some strong evidence in support of the principle. I must remind you that I am neither an electrician, chemist, or mechanic, and, therefore, my remarks and opinions must be taken for what they are worth; but it seems to me there are so many diversities of opinion, and so many theories about the properties and effects of electricity, that it is impossible to arrive at any conclusion that is altogether satisfactory. As far as I understand the matter it is simply this. Let it be given as an admitted fact that mercury, when fresh and clean, readily absorbs gold and siver when they come in contact with it. It must also be allowed that the presence of antimony, arsenic, mundic, titanic sand, and various other substances, sicken or coat over the mercury, and so prevent gold and silver from adhering or amalgamating with it; and as there are vast quantities of ores with gold and silver all over the world that contain some one or more of these minerals which are destructive to the mercury, it is obvious that any system that can be invented which will keep the mercury clean and bright, and always ready to take in the gold and silver, must be of immense value. That Barker's Electro-Amalgamator carries out this requirement is conclusively proved, both in theory and practice. Now, in the case of this invention, the negative pole is applied to the mercury, and as mercury is a very good conductor of electricity, it, in fact, becomes our negative pole or cathode, the positive poles are strips or wires of copper or some good conductor, which are laid over but not touching the mercury. Just as the electric light is formed by making a break in the circuit and introducing carbon points, so our circuit is broken and joined, so to speak, by the agency of water, the water becomes chemically changed, and, of course, if chemical matters are introduced into this water, various other changes and modifications will take place. The first thing that strikes our notice on the application of the electricity is the immediate disappearance of any scum on the top of the mercury, it becomes as bright as it possibly can be. As the various substances that usually sicken it come under the influence of the electricity they are immediately rejected, and the surface is kept constantly bright and in the fittest state for absorbing gold. This is conclusively proved by artificially sickening the mercury; directly the electricity is applied the matter that sickened the mercury is ejected, and the tiny globules into which it has been beaten run together, presenting a bright and uniform surface. Now, gentlemen, I think it logically follows if the electricity will purify the mercury when sick, it will, *a fortiori*, prevent it getting sick when pure. The invention in this respect is of enormous value, but I contend that the keeping the mercury clean is not the only point gained, and I think it will be admitted that the electricity induces the contact between the gold and silver and the mercury, in this way certain minerals are driven by diamagnetic action from the positive to the negative pole, and among them gold and silver; now, as the crushed ore passes over the mercury it is conveyed by means of the water between the negative and positive poles, and each gold particle becomes an electrode, with the obvious effect that it is impelled from the positive to the negative pole; in our case the negative pole is clean mercury, which readily absorbs the gold and silver particles, so we have not only the natural gravitation of the gold but the diamagnetic force, which, I think, possibly precipitates the gold in the mercury, leaving it clean at the top. Why, it may be asked, are not other metals like iron and copper equally by the same influence driven to the mercury; so I say they are, but as mercury has no affinity for these metals they are kept moving over the mercury, getting as far as possible from their enemy the positive pole until they are thankfully washed away by the water. In the case of sulphurets the action is different, they become decomposed and thus liberate the gold, and instead of depositing themselves on the negative pole and sickening it they judiciously avoid it, and go to the positive pole attracted by the copper, and get formed into sulphate of copper. It is more than satisfactory to find these theories are practically proved true, for if you refer to page 10 and 11 on the pamphlet, just issued, you will see that out of some sand given to us from one of the Indian mines, assaying 2 ozs. 13 dwts. to the ton, by the Electro-Amalgamator process we have taken 2 ozs. 11 dwts., so that all except 2 dwts. was recovered. Now the analysis of this sand shows nearly 61 per cent. of titanic acid and iron, so there can be no wonder that with the ordinary process the gold could not be extracted. I understand there are thousands of tons of this sand, and the result we have shown with our treatment is worth 50,000*l.* a year to the owners of this property. This is not an isolated instance, but from the information I can gather it forms an example of the rule, and by no means an exception; indeed, I can assure you, I am bewildered at the possible value to the world at large of this invention. From all quarters I hear of thousands of tons of gold and silver ores that are unworkable from the presence of the obstacles that this invention removes. There are generally two values to saleable property—first, its intrinsic value; and secondly, what you can get for it. Now, this invention being all that is claimed for it, its intrinsic value is many millions; this we cannot expect to get, except, perhaps, indirectly. A person came to me some months ago with the view of purchasing one of the patents; I told him we were not ready, and, before the invention was made public, we wished to prove it and perfect it on a commercial sale. He said, "You take my advice, if it is really good and will bear looking into, don't be in a hurry to part with it; if it is worth nothing, sell it at once." Now, there is a sublime simplicity about this system of financing that I fear is more remarkable for its success than its morality. We, as directors of this company, have not only your interests to protect but our names, and, therefore, we must take personal care that any patent we offer for sale will bear looking into, as there is no consideration sufficiently large to induce us to foist anything upon the public unless we are clearly satisfied it is all we claim for it. I do not see that we attack any vested interests, on the contrary, the vast amount of capital invested in gold and silver mines that do not pay will now return profits, and those mines that do pay will pay more. All we require now is gradual publicity, in this I am sure you will help us. I say gradual, as owing to the small space at the works there is not room to have a large assemblage at a time, but both scientific and practical men who have seen the invention have always expressed themselves as strongly impressed with its value, but we must make it generally appreciated before we can expect to sell any of the patents at anything like their actual worth. I am very much obliged for the kind way in which you have listened to my remarks, and I shall be happy to answer any questions to the best of my ability, but I am not prepared to join issue where any scientific principles are involved.

Mr. HOWELL: May I ask you, Mr. Chairman, whether you have any negociations on foot at the present time for the sale of any of these patents?——The CHAIRMAN: We have no negociations on foot at the present time, our reasons being that it is only within the last few days that we have attempted to make the matter public, but we are ready to commence negociations almost immediately. We have been in correspondence with several Indian mines, not with the view of selling the patent, but to wash for them quartz which they find refractory. I may mention that many directors and shareholders in Indian mines come to us, and express themselves very much interested in the process.

Mr. HOWELL: Is it the intention of the directors to lay before the shareholders a statement of the mode in which the funds of the company, hitherto subscribed, have been applied?——The CHAIRMAN said that as this was a statutory meeting no balance-sheet had been prepared nor submitted, but it would be laid before the shareholders at the next general meeting. It was not customary to place it before a statutory meeting.

Mr. HOWELL: Could you tell us roughly the amount of money actually subscribed, the mode in which that money has been applied, and what balance is in hand?——The CHAIRMAN: The money in hand is a few hundred pounds. The amount subscribed in cash was 5000*l.*, of which 2500*l.* has been paid up. The patentee has received 1000*l.*, and there is about 500*l.* or 600*l.* at the bankers. The remaining 800*l.* or 900*l.* has been expended in rent of premises, a dynamo-machine which cost 175*l.*, a gas-engine which cost 250*l.*, and other smaller expenses.

Mr. GLADSTONE: Roughly speaking 700*l.* or 800*l.* has been expended in machinery.

A SHAREHOLDER: Is a further call contemplated, or is the machinery you have sufficient to show the process?——The CHAIRMAN: No, probably the whole of the capital will have to be called up. The shareholders are anxious it should be done, but it is a question. I am not sure in my own mind. If we sell a patent it may not be necessary to call up the rest of the capital.

A SHAREHOLDER asked the terms on which the patents were obtained by the company?——The CHAIRMAN said that the purchase-money for its share of the patents—that is, for half the patents bought of Mr. Barker, the terms on which the company bought the patents were as follows:—Leaving out the American patent, which was left in abeyance, and leaving out the New Zealand patent, which was accepted for the time, for the rest of the patents the company agreed to pay Mr. Barker 4000*l.* in shares, and 1200*l.* in cash for the company's share. When the American patent was received the company paid a further 3000*l.* in shares and 1800*l.* in cash, making altogether 10,000*l.* So that Mr. Barker would receive 7000*l.* in shares, credited as fully paid up, and 3000*l.* in cash. They had 14 years to run with these patents. The object of this company was to acquire these patents, and must be able to show their value in every possible way. It was only within the past few weeks that the directors felt themselves in such a position that they could ask good sums for it. They had experiments carried out under their own eyes, and handed them to Mr. Claudet to be assayed. Up to that time the directors had not that personal knowledge which would enable them to go before the public; and if they had forced the sale of the patents earlier they would have sold them cheaper than they were worth. There were a great many persons in communication with the company with respect to the process. The directors were not anxious to sell just now; why should they allow these valuable patents to go too cheaply? (Hear, hear.)

A SHAREHOLDER asked for what countries patents had been obtained?——The CHAIRMAN said for France, India, and Canada. Germany had granted a provisional protection, so they might consider that patent virtually granted. In Chili and Peru the company had special agents, who were taking out patents. In a word there was no reason to doubt that the patents would be granted in all the countries where application had been made.

Mr. GLADSTONE: There are several other countries in which the specifications have been lodged, and there is no doubt we shall get them all. There is no obstacle in the way.

A SHAREHOLDER suggested that it was only proper that the remuneration of the directors should be considered at this meeting.

This suggestion met with general approval, and after a short conversation the following resolution was proposed by Mr. H. B. HEWITT, seconded by Mr. RANDOLPH, and unanimously carried:—"That the remuneration of the directors for the ensuing year be 5 per cent. upon the amount of profits actually divided during that period."

A cordial vote of thanks to the Chairman and directors closed the proceedings.

THE ELECTRO-AMALGAMATOR COMPANY (LIMITED).—BARKER'S PATENT.

THIS PATENT IS FOR THE MORE PROFITABLE EXTRACTION OF GOLD AND SILVER FROM THEIR ORES.

The great demand that has sprung up for gold during the last few years, both in America and Europe, as a means of converting the currency and the paucity of production to supply the deficiency, has attracted the public attention to the necessity of an increased effort to obtain the precious metal by opening out new fields. As will be seen by the following pages, the presence of copper and iron pyrites, mundic, and other substances inimical to the profitable extraction of gold, has prevented many otherwise valuable deposits from being worked, and in cases where there has been a sufficient amount of gold to warrant capitalists in obtaining it, the loss of the residue of the possible amount to be extracted has in most cases been very great.

It would be tedious to give in detail the whole of the information collected by the directors as to the gold producing capabilities of the world, and the corresponding disabilities of the miners to extract the whole of the precious metals from their matrix, and it will be observed that the directors carefully avoid any reference to the value of this patent for the extraction of silver from its ores, as although it is probable that the patent may be extremely lucrative for that purpose, it will be apparent that at present the directors have a sufficient field for their labours to occupy the whole of their attention. It should be noted that Mr. Barker's invention interferes neither with any vested interest nor with any existing patent; on the contrary, it will not only be a boon to all shareholders in gold mines, but greatly assist any system where mercury is employed, and therefore the opposition that is usually met with in the introduction of new inventions, will not be incurred in the case of the Electro-Amalgamator.

The following extracts from the *Mining Journal* give a summary of Mr. Barker's process:—

"He provides a table, insulated or not, in which he places two or more riffles, or baths containing mercury, at convenient distances from one another, and fitted or not with the ordinary agitators. Over this table the quartz alluvial deposit, or other matter containing gold, silver, or both these metals, is washed by the ordinary method. A current of electricity is then passed through the apparatus, by one or more suitable conductors, in the following manner. The negative pole (or cathode) of the battery, or other source of electricity, is connected with the mercury in the riffles, and the positive pole (or anode) is introduced into the water immediately above the mercury, and sufficiently close to it to cause an energetic action, the electric current being allowed to pass through the water, by placing in it, at convenient distances, plates or wires of copper, or other good conductors of electricity.

"It is necessary to keep the mercury covered with a stratum of water, as the action of the mercury is thereby properly maintained. The introduction of an electric current into the water causes continual agitation at the surface of the mercury, prevents it from what is technically termed sickening in the presence of arsenic, sulphur, oil, or any other substances known to act in like manner, and which are deleterious to the action of mercury in amalgamating with gold or silver; and also prevents titanic sand or other heavy mineral deposits from remaining on the surface. The surface of the mercury immediately under and around the copper plates, wires, or the like, is kept thoroughly bright and capable of amalgamating readily with gold and silver, despite the presence of foreign substances. The conducting plates, wires, or the like, he makes either stationary or movable, and attached to the riffles, taking care, however, that if revolving, or otherwise in motion, the plates or wires shall never come into contact with the mercury."

In the more difficult operations of extracting gold from mineral veins and complex ores, reliable evidence from all parts of the world shows that most of the processes at present in use, or the methods of carrying them out, are far from satisfactory, as they entail the loss, on the average, of one-quarter to two-thirds of the gold present in the material operated upon, it seems conclusively proved that the vast quantities or tailings of existing and paying mines would, by using Barker's patent, return more to the shareholders than they have already received. One of the chief merits claimed for the electro-amalgamator is that the electricity as applied keeps the surface bright, lively, and equally capable of readily seizing upon gold as pure mercury long after the limit of saturation under ordinary circumstances has been reached.

This property renders the patent of almost imperative necessity, not only to those mine proprietors whose quartz is refractory, but also where the gold is principally free, effecting as it does a large saving in mercury and a corresponding saving in the fact of a less frequent necessity for retorting. Another of the chief merits claimed for the electro-amalgamator is increase of contact between the gold and silver (especially the latter) and the mercury. By electric action the gold and silver are driven to the negative pole, and as the negative pole is the mercury itself, which is kept in a perfect state for amalgamation by means of the electricity, it is obvious that the natural gravitation of the gold and silver is assisted by the attraction of the electric force as to allow but few, if any, of the particles to escape.

From the foregoing remarks it will at once be evident that the patent rights are of no ordinary value, inasmuch as Mr. Barker's patent is applicable to almost every description of machinery where mercury is employed in the extraction of precious metals. It keeps the mercury thoroughly active and bright under all circumstances, and peculiarly active in amalgamating readily with the noble metals, causing it at the same time to reject the base ones; whereas the presence of arsenic, pyrites, &c., have, under the system now in use, caused it to sicken, thus rendering it incapable of absorbing gold or silver, indeed no invention of the present century exceeds in value that of Mr. Barker. This is at once recognised by all interested in the extraction of the precious metals who have seen it, and the directors have every confidence that on the process becoming known it will be adopted by mineowners generally.

The following letters from Mr. Tapp, M.E., Prof. May, and Mr. Barker, M.E., F.G.S., together with the certificate of Mr. Fred. Claudet, assayer to the Bank of England, are worthy of attention:—

59, Mark-lane, London, E.C. Sept. 16, 1882.

To the committee of management of the Electro-Amalgamator Company (Limited), Barker's patent.

GENTLEMEN,—According to your instructions I have carefully examined and minutely tested Barker's Patent Electro Gold Amalgamator, and now beg to hand you my report thereon. I have recently made a series of experiments with the machine to test its power of cleansing mercury which had been previously sickened with arsenical iron and copper pyrites, antimony and arsenic. The plan I adopted was this. I crushed a quantity of quartz containing free gold, and then added 1 oz. antimony, 1 oz. arsenic, 1 oz. pyrites, with 1 oz. olive oil. This mixture I passed through the machine, charged with clean mercury, without connecting the electric current; the result was that in less than five minutes the surface of the mercury became black and filthy, in fact, so thoroughly sickened as to allow nearly all the free gold to escape in the tailings. The electric current was then applied, and the same mixture again passed through the machine with most remarkable results, the electrified mercury instantly assuming a most lively appearance, repelling all impurities from its surface, and becoming perfectly bright and clean, and at the same time appearing to have increased its affinity for gold. During a long experience in reduction works and the amalgamation of gold, I have constantly been studying and experimentalising to find out some chemical or other action to produce a similar effect to that I have described. Chlorine, sodium, and other chemicals have been tried, but their effect was merely trifling when compared with the results produced by this process. The above experiment, with many others, was conducted in the presence of several gentlemen, who, like myself, have practically suffered from the obstacles usually met with in gold saving by the sickening of mercury by sulphides, arsenic, &c., and the result of experiments was to convince all of us, that the invention is one of the greatest value and must entirely revolutionise the old processes. The invention will be invaluable in the Wynaad and Colar districts, where the quartz is of a very pyritous nature, and where difficulties with regard to the amalgamation of the gold have already been seriously felt. I have the honour to be, Gentlemen, your obedient servant,

HENRY TAPP, M.E.

London, July 29, 1882.

GENTLEMEN,—During the past three weeks I have been engaged in a series of careful experiments with Mr. Barker's electric amalgamator, and I have much pleasure in certifying that the results obtained are not only far beyond my expectation, but that they appear to me to approach scientific perfection. The simplicity of its detail will enable this new process to be applied to almost any existing system of gold washing at a trifling initial cost, so small indeed, that where considerable quantities of ore are in treatment, the additional expense per ton will be scarcely appreciable. My last experiment was made upon a large sample of quartz which is so refractory that although by analysis it is found to contain upwards of 3 ozs. of gold to the ton, the mine in which it is contained has been abandoned owing to the impossibility of working it by methods hitherto adopted, without too great an expense for the extraction of the metal in paying quantities. After the application of Mr. Barker's process, however, the analysis of the tailings shows so small a quantity of gold, that I do not hesitate to say that this particular mine can now be worked at an immense profit. This is an isolated instance, but I am given to understand that there are literally thousands of mines lying idle in various parts of the world, owing to the inability of owners to obtain profitable results by methods now in vogue. It appears to me that such difficulties need no longer exist, and I feel convinced that great as have been and will be the benefits of electricity for lighting and motive purposes, Mr. Barker's invention must, from a direct pecuniary point of view be yet greater, and if the patent be judiciously administered he, and those interested with him, should reap a reward proportionate to the enormous impetus it may be expected to give to the industry of the countries containing gold, in what is termed a refractory matrix.

Faithfully yours, WILLIAM RUTTON MAY, Electrician.

I may add that the experiments herein referred to were not made in a laboratory, but on a practical scale, so that no doubt might exist as to the commercial value of the process.

The following certificates of analysis and assay are made by Mr. Fred. Claudet on titaniferous sand taken from one of the Indian mines, and treated by the electro amalgamator process;—

Analysis of sand before treatment, as handed to the directors—

CERTIFICATE OF ANALYSIS.

Assay Offices and Laboratory, 6 and 7, Coleman-street, London, E.C., Jan. 17, 1883.

To the Electro-Amalgamator Company, Tower Chambers.

I have examined the sample of titaniferous iron sand received on the 8th inst., and find the following to be the result:—

Titanic acid	25·26
Iron	24·96 per cent.=35·65 peroxide of iron
Oxide of manganese	·20
Copper	·32
Arsenic	·05
Sulphur	Traces
Lime	·15
Magnesia	·08
Alumina	1·27
Siliceous rock	38·26=101·24
Gold	2 ozs. 13 dwts. per ton of 20 cwts.

The excess in the analysis is due to the iron, 24·96 per cent. being all stated as peroxide, while a portion exists as protoxide, the amount of which cannot be exactly determined. FRED. CLAUDET.

Assay of sand after treatment by the electro-amalgamator process:—

CERTIFICATE OF ASSAY.

Assay Offices and Laboratory, 6 and 7, Coleman-street, London, E.C., Jan. 11, 1883.

To the Electro-Amalgamator Company, Tower Chambers.

I have examined the sample of sand received the 9th inst., and find the following to be the result:—

A. Gold—Traces. B. Gold—0 oz. 2 dwts. per ton of 20 cwts.

FRED. CLAUDET.

NOTE.—The assay marked A is the result of 95 per cent. of the bulk; the assay marked B is the result of the remaining 5 per cent., which, being coarse grains of iron sand, was less easy of treatment, and would require crushing, in order to get the whole of the gold out.

From this it will be seen that the electro-amalgamator process extracted 2 ozs. 11 dwts. out of 2 ozs. 13 dwts., leaving only 2 dwts. in the tailings.

The directors consider the above splendid results from such refractory ore (of which they understand there are many thousand tons will afford) the shareholders the most satisfactory evidence of the practical value of the invention.

CERTIFICATE OF ASSAY.

Assay Offices and Laboratory, 6 and 7, Coleman-street, London, E.C., Aug. 3, 1882.

I have examined the two samples of tailings from Australian ore, received July 29, 1882, and find the following to be the result:—

Tailings, dry weight, by ordinary amalgamation—gold } 2 ozs. 1 dwt. per ton of 20 cwts.

Tailings dry weight, by patent—gold.. 0 oz. 15 dwts. " "

FRED. CLAUDET.

4, Norfolk-street, Strand, Aug. 4, 1882.

DEAR SIR,—I am obliged for copy of Mr. Fred. Claudet's assays of samples. The ore operated upon was composed of hard quartz, with an unusual proportion of black sand, which invariably causes a large loss in gold. The assay proves a balance in favour of the patent of 26 dwts., equal to 5*l.* per ton advantage over ordinary amalgamation. Yours faithfully, RICH. BARKER, M.E., F.G.S.

The following statistics will interest all connected with gold mining enterprise:—

"AUSTRALIA—NEW SOUTH WALES.—The value of the gold raised in New South Wales prior to Jan. 1, 1881, is estimated at 33,777,344*l.*; this is probably considerably under the actual produce. Owing to the presence of zircon and iron pyrites there is little doubt but the tailings alone from the ores containing this gold can be treated by Barker's process at a cost which will yield many millions sterling at a comparatively small expense. The inventor has received a letter from Mr. J. James, assayer to the celebrated Burra Burra Mines, and secretary to the President of the Legislative Council of South Australia, in which the following passages occur:—'There will be a splendid field in these colonies, as by the system adopted by all our gold mines I am quite sure they cannot save one-third of the precious metal, and in some instances they lose all. I have just received the return of a crushing of 10 tons from a promising reef, near Blumberg, carrying always a large percentage of pyrites—12 grains of gold to the ton. Now, I have been in the habit of assaying this quartz for the last eight months, and the average has been 4 ozs. to 1 ton, and I regret to say most of our gold mines are turning out unsatisfactory. By assay the yield is generally good, but from the imperfect mode of manipulation the results have been wretched.'"

From the South Australian Register the following passage has been taken:—

"HOPE FOR GOLD MINING IN SOUTH AUSTRALIA.—The last mail from England brought word that 89 lbs. of stone from our Onkaparinga gold-bearing districts yielded by assay 2 ozs. 12 dwts. per ton. Of this quartz 27 lbs. gave by ordinary amalgamation 12 dwts. per ton, thus fully agreeing with our unfortunate experience; for however good the honest reports of the assayers may be, the produce of the crushing in quantity falls lamentably short of the assay test. Now, this correspondent tried the remaining 62 lbs. of stone by his patented electro-amalgamator, and secured 2 ozs. 1 dwt. to the ton. In the first (the usual) process the loss was 2 ozs. 1 dwt. per ton to 12 dwts. secured; in the second (the electro process) the gain was 2 ozs. 1 dwt. per ton, loss 12 dwts. If the electrical process fulfils its promise as given above, many of our gold mining ventures may yet hold their own."

The Hon. G. W. Cotton, M.L.C., South Australia, writes the inventor:—"I hope your electric amalgamator will prove worth a million to you—it will be of much more value to South Australia and the world. I hope you are taking steps to have your invention patented here."

QUEENSLAND.—This district is very suitable for the company's operations. The Queensland trophy exhibited at the Paris Exhibition, in value 10,587,664*l.*, testifies to production of gold in this district; but the quartz in depth, although containing a large amount of gold has rendered several of the most noted mines unproductive on account of the presence of sulphurets, whilst the tailings from those now in operation can be successfully treated by Barker's process. A recent Government report states:—"The quartz and pyrites being much decomposed near the surface, when the reefs were first opened, there was a considerable quantity of free gold easily extracted by crushing and washing; but on sinking, the rock was not only harder, but the pyrites interfered with the crushing, by cutting the gold with its sharp angles, and at the same time it acted chemically on the mercury in the battery, forming a crust over which the smaller fragments of gold passed, and the production of the precious metal did not pay the expenses of working. Subsequently attempts were made to extract the gold, silver, and copper from the pyrites by collecting it below the crushing machine and smelting in furnaces, which were erected on the spot at great expense; but the results do not appear to have been satisfactory, as the works are no longer in operation."

VICTORIA.—The total quantity of gold raised in Victoria from the period of its first discovery in 1851 to the end of 1880 is officially stated as 198,586,000*l.* The ores of this district being largely impregnated with arsenical and magnetic iron and copper pyrites leaves no reason to doubt but that Barker's process will extract from the tailings a very large percentage of the amount got by the old method.

IN BRITISH COLUMBIA statistics show that there has been upwards of 45 millions sterling of gold exported by the local banks. The tailings can be treated by this patent to advantage; the actual loss, however, is not known.

UNITED STATES OF AMERICA.—In all probability the patent for the United States will be sold to each of the seven gold producing States or Territories separately. The most important (for gold) being California, which between the years 1850 to 1875 produced gold to the amount of 280 millions sterling. The quartz of California, Nevada, &c., being sulphuretted, is especially adapted for treatment by Barker's amalgamator.

BOLIVIA.—The production up to 1876 is estimated at about 41 millions sterling. The mines in this country have not been worked to the extent of their capabilities, inasmuch as the gold occurs in admixture with antimony, &c., which at present necessitates a metallurgical process for its extraction. The directors have reason to believe that a great impetus will be given to the mining industry of Bolivia by this patent, as the gold-bearing portion of the country possesses the two necessary conditions of mining—an exceedingly healthy climate (being at a height of 10,000 ft. above the level of the sea), and the ores, though very refractory by the ordinary process, are exceedingly rich in the precious metals.

BRAZIL is estimated to have produced some 144,000,000*l.* in value of gold, but chiefly from alluvial deposits. Quartz mining in that country is, however, beginning to receive much attention, and as the gold is found principally in magnetic iron pyrites or mispeckel (arsenical iron pyrites) there is little doubt but the electric process will obtain speedy recognition.

CHILI is known to have produced some 36,000,000*l.* of gold, and mercury is largely used in that country, both for the extraction of gold and silver. The loss of quicksilver per annum from its flouring is very considerable.

PERU up to 1875 has yielded upwards of 22,000,000*l.*, and the ore is well adapted for Barker's process.

VENEZUELA.—The directors propose to make efforts to introduce their system by amalgamation into this country, several important companies having been compelled to discontinue working, on account probably of the great loss in the amount of gold that could be extracted.

NOVA SCOTIA.—In a Government report on gold mining in this country, 1880, Edwin Gilpin, jun., Inspector of the Mines, says—"I would beg leave to call your attention to the indifference shown by our gold miners to the various pyrites contained in our quartz lodes. The percentage present varies, of course, in every lode and district from one-half of 1 per cent. to 25 per cent.; but assuming it at an average of 5 per cent. on all material crushed, there has been over 19,000 tons of these substances thrown away since returns have been made by millmen. Taking the average of various assays of gold and silver contained in these sulphurets, &c., it will be found that their value is as follows:—Per ton of 2000 lbs., gold, 2 ozs. 4 dwts.; silver, 4 ozs, 17 dwts. Total value $50·48, not including the values of the copper, nickel, and cobalt which are generally present. In other words, over a million dollars has been thrown into brooks and swamps during the last 18 years."

AFRICA.—The product from Africa is estimated at 201,400,000*l.* The gold has been, however, obtained chiefly from alluvial deposits, and the directors have not as yet sufficient information to furnish data as to the probable value of rights they may obtain in that continent.

AUSTRO-HUNGARY.—There is a field for the operations of this patent in the above country which should be speedily recognised when it is known that statistics show that up to the year 1875 an acknowledged yield, in value 64,260,650*l.*, has been raised, and that at present nearly 150,000 tons of auriferous and argentiferous ore is raised yearly, the gold principally existing in sulphurets, and mixed with magnetic iron. The amount of gold in the tailings alone treated by Barker's process should give a return of some millions to the adventurers.

SOUTHERN INDIA.—It is well known that some three millions of English capital has lately been invested in gold mines in Southern India; of this sum a large proportion has been paid for the purchase of properties, but a very considerable amount has been expended on the properties themselves. Undoubtedly the quartz of that country contains payable gold, but hitherto practical results have been most unsatisfactory, owing to the presence of black sand, arsenical pyrites, &c., which speedily sickens mercury. Small quantities of these ores have been tried upon Barker's experimental machine with perfect success—(*vide* assay on page 11). The company is now ready to crush and treat any reasonable quantity under the supervision of those interested. It is hoped and believed

that the company's patent will not only prove a large source of wealth to the Electro-Amalgamator Company, but will render remunerative the British capital which has been so largely expended in developing the resources of this district. Patents for the other presidencies have been taken out in view of public attention, and moneys being attracted thereto, the well known Himalayan Mountains containing vast riches hitherto unworkable from the reasons before mentioned from which this patent entirely removes the difficulties.

RUSSIA, INCLUDING SIBERIA.—The gold mines of Russia have until recent years been worked by the Government and a few privileged individuals alone. The Stroganofs, Demidofs, and the Yakoolefs have made colossal fortunes by gold mining industry, and under the altered circumstances of the law, it may be reasonably expected that the Russian patent will be one of no inconsiderable value; indeed, the gold fields of Russia are of such a considerable extent that the more enlightened policy of the Russian Government will give an impetus to enterprise in this direction that bids fair to make it one of the largest gold-producing countries of the world. Upwards of 50,000,000*l.* sterling is known to have been taken under the imperfect methods hitherto adopted.

GERMANY.—Although for many years the rivers of the country have been notoriously auriferous, and gold is exploited in some parts of the Rhine, and in many other places, which the limits of this pamphlet will not allow space to expatiate upon—gold mining has not hitherto been extensively worked as a principal industry of the country. It is fair to suppose, however, that it is not improbable that the patent will be of considerable value in the encouragement of the extraction of gold from ores that have been considered unremunerative.

ITALY.—About 60,000*l.* yearly represents the value of the gold which is obtained from the ordinary amalgamation process. The ores accompanying the auriferous pyrites, are copper pyrites, mispeckel (arsenic pyrites). It is probable that under the electric system the yield of gold will be very largely increased.

SPAIN.—It is somewhat difficult to estimate the value of this patent. For many centuries gold has been extracted from its matrix in the rudest manner, the amount of the tailings from the process being incalculable. Livy mentions that the gold of the ornaments of Roman matrons came from the district of Tamaya, in Spain, and the mines of gold and silver which existed in Spain were a great source of wealth to the Arabs, and up to this day large quantities of gold are being raised, but the ore is refractory, and is well adapted for the treatment by the patent of the company.

THE UNITED KINGDOM.—The object of the directors acquiring this patent was principally to secure its safety in its colonies, as although the existence of gold has been known since the history of the country can be traced at the present time, it is very doubtful if gold mining can be profitably worked. Experiments will, however, be tried with the Irish and Welsh ores, which may result in a manner which will be sufficiently encouraging to induce adventurers to again test the possibility of obtaining successful results. The directors will give every facility to mine proprietors, or those who propose to work mines in the United Kingdom to test the process, without making any charge except the amount of the outlay actually in excess of the ordinary expenditure of the company, as they consider it possible that the abundance of titaniferous iron ore (black sand) [together] with iron pyrites [which is usually found in the auriferous ores of the United Kingdom may be the cause of the failure to give profitable results, in which case Barker's Patent will entirely remove any difficulty in that way. It must be seen that the directors have only at present been able to collect information and to obtain a general idea of the probable value of the property they have acquired from independent sources, at the same time perfecting, so far as may be, the machinery to carry out the patent. The directors have refrained from making overtures to individuals until they were in a position to realise, in some measure, the value of the information in order that they might, on the one side, not demand a price or a royalty which would be too exorbitant, or, on the other hand, sacrifice too greatly the advantages to be derived from the discovery, which bids fair to vastly increase the gold-producing capabilities of the world.

N.B.—All communications on this subject to be addressed by letter to Henry Beckwith, jun., Secretary Electro-Amalgamator Company (Limited), 37, Tower Chambers, Finsbury Pavement, E.C.

The following is taken from "Gold, its Occurrence and Extraction, by Alfred G. Lock, London, 1882," a work of the greatest value to all the gold mining companies and mine proprietors, which will show the reader that the difficulties connected with the profitable extraction of gold and silver are obviated by Barker's Patent:—

"The amount of loss of gold is not a fixed quantity, but varies with the kind of stuff, the degree of fineness to which it is crushed, the volume and fall of water used, and mode of settling. It would be difficult, therefore, to do more than make a vague allowance for this loss; and this is stated by several of the managers of the batteries at 30 to 50 per cent. upon the stuff before crushing. The experiments were confined to the testing of the actual loss in earthy matter incurred by the mode of sampling, the greatest amounting to 45·3 per cent., while the lowest was 20 per cent.

"Compared with the loss experienced on other gold fields, where amalgamation is the process used, this does not appear excessively high. Still, it is very unsatisfactory, as regards our present gold-saving arrangements, to know that we are frequently throwing away nearly as much of the precious metal as is saved, and, with a view to the reduction of these losses, the main causes of this loss will now be considered. The principal cause of loss may shortly be stated, for this and other gold fields where amalgamation is relied on, as the want of perfect chemical contact between the gold alloy and the mercury employed. However much of this may be due to defects in mechanical arrangements adopted for securing the gold, the result of Skey's investigations certainly shows that most of it is fairly attributable to causes of a chemical nature, and which the very best mechanical manipulation could but partly overcome. These may best be discussed and explained, so far as possible with our present imperfect knowledge, by dividing them into those which especially relate to the mercury, and those which relate to the gold alloy.

"1. Regarding the mercury employed for amalgamation. That this substance generally sickens or 'flours' when ground up with pyritous rocks is so well known and so frequently experienced by all managers of batteries that it would be superfluous to point out that the true chemical contact sought is much impeded or even entirely prevented by such a circumstance. But as several bodies naturally occurring in such rock are capable of inducing this unfavourable state of the mercury, it may be useful, with a view to the adoption of remedial measures, to explain what is the general cause upon this gold field.

"Whatever has been affirmed about the metallic arsenides or sulphides, sulphur, and sulphuretted hydrogen being frequently or directly active in producing this flouring, Skey feels convinced that the greatest enemy to be contended with on this account upon this gold field is protosulphate of iron (green vitriol). He does not know that these arsenides or sulphides exercise any direct effect upon mercury; it is only the products of their decomposition which appear so to act. And this decomposition is so slow compared with the ordinary speed of amalgamation, that ere it has advanced far enough to practically effect the yield, the whole of the auriferous stuff would have been passed through the mill. As regards sulphur and sulphuretted hydrogen, the former has not been identified at the Thames in a free state, and even if it were present, by reason of its insolubility and comparative non-volatility, its effects upon mercury would be slow. The latter is, on the other hand, very rapid in its effects; but its existence is incompatible with the presence of sulphate of iron, a salt pretty generally diffused in wells and shafts, and porous pyritous rocks occupying superficial situations. Taking all this into consideration, Skey inclines to the opinion that not only in this, but in other gold fields, the greater part of the flouring or sickening of the mercury used is due to the action of sulphate of iron.

"2. Want of contact, owing to the composition and properties of the gold alloy itself. In regard to the average composition of these alloys, an analysis of four specimens, from as many different localities, showed that in three of them the metal antimony occurred in very sensible quantity. Skey found by direct experiment that antimony is not a metal which readily amalgamates; it is pretty certain, therefore, that it would communicate something of its negativeness in this respect to whatever gold alloy it might occur in; indeed, he observed from his own experiments the very slow rate at which these kinds of alloys do amalgamate. Regarding the properties of these gold alloys themselves in more intimately affecting the chance of true chemical contact, a hitherto quite unsuspected one has been discovered in the course of these investigations. It has become apparent that the surface of native or artificially prepared gold, even of extreme fineness, energetically absorbs sulphur or sulphuretted hydrogen. When these surfaces are so affected they absolutely fail to have such contact with mercury as to enable the metals to amalgamate. Comparing the reaction of artificially sulphurised gold with that of various specimens of native gold, leads to the assumption that in many cases where the amalgamation of these specimens is slow, or does not take place, the obstacle is sulphur, most probably existing in combination with gold as an auriferous sulphide. The bearing of these results upon the subject under investigation is obviously important, as the exercise of this hitherto unsuspected property of gold must have a very prejudicial effect upon the amalgamation processes as practised in all the reef workings. Sulphuretted hydrogen is too common a substance, or at least the materials required for its generation are too widely spread to allow of the hope that any larger portion of the exposed superfices of our own native gold has not been effected by it to a greater or less extent, and so rendered to a corresponding extent unamalgamable.

"As to the principal cause of the flouring (sickening) of mercury upon these gold fields in presence of the sulphate of iron in the reef stuff, and as this salt is freely soluble in water, one way of preventing the mercury being affected in this manner is to wash the auriferous stuff impregnated with this salt prior to stamping. Whether such a process could be profitably used is a question for experience to determine; to a certain extent, where good water is used for the stampers and tables, the ill effects of the metallic sulphates present in the reef are diminished. The use of water for these purposes containing any notable quantity of sulphates, acts even more prejudicially than the sulphates naturally existing in the stuff itself, even were they never so abundant. The greatest possible quantity of good water that the incline of the copper plates will safely allow, should be employed, since the solution of these metallic salts is thereby weakened, and so correspondingly less productive of harm."

[For remainder of Meetings see this day's Journal.]

WEST MARY ANN.—At the meeting on Monday (Mr. W. G. Nettle in the chair) the accounts showed a debit balance of 422*l.* 1s. 6d. A call of 5s. per share was made. After reporting upon the various points of operation, Captain T. F. Tremellen says: For the further prosecution of the mine he would advise the immediate sinking of the shaft and the driving of this level; but to do this it will be necessary to erect, without delay, a larger engine, as the present appliances are insufficient to drain the water.

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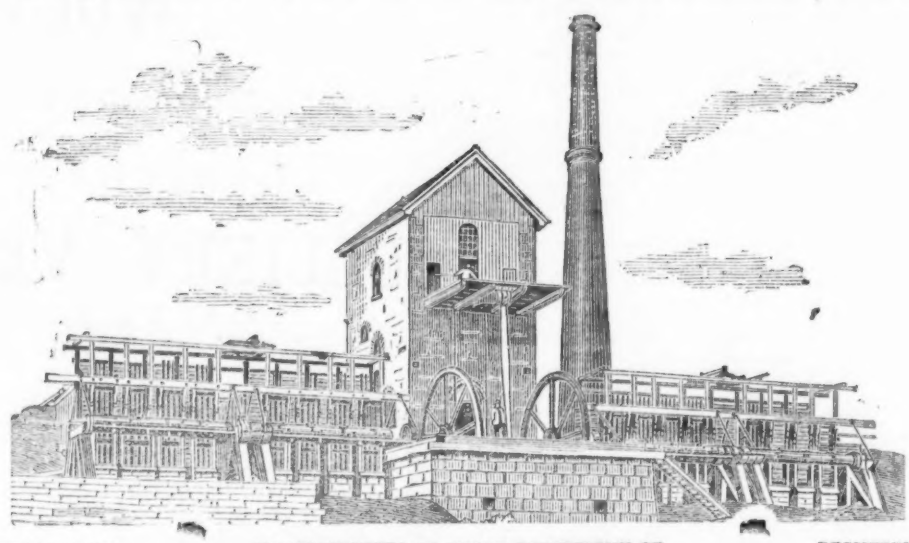

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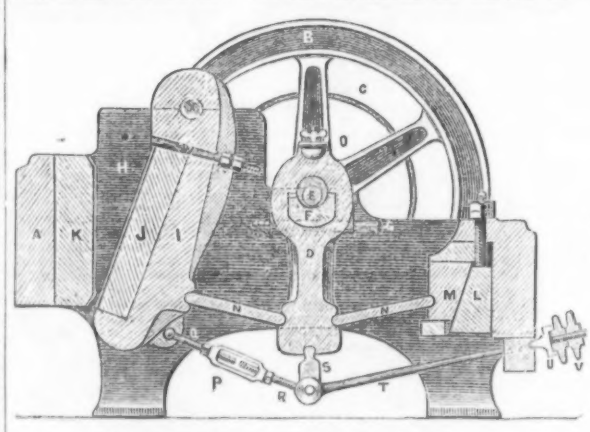

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THE UNION LAND AND CATTLE COMPANY (Limited).—Capital 350,000*l.*, in shares of 10*l.* To buy, breed, graze, and sell cattle, sheep, hogs, and horses and other live stock in the United States of America. The subscribers (who take one share each) are—J. G. Smith, Edinburgh; J. D. Smith, Edinburgh; A. Beveridge, 18, Abingdon-street; M. Campbell, St. Michael's House; R. Wigram, Finsbury Chambers; Sir R. L. Price, Bart., 75, Warwick-road; Sir S. Hogg, 37, Cornwall Gardens.

NORTH BRITISH LOAN AND INVESTMENT COMPANY (Limited).—pital 10,000*l.*, in shares of 5*l.* The general business of a loan and nancial concern. The subscribers are—T. Macreavey, Liverpool, 0; J. Barratt, Liverpool, 10; J. McHugh, Liverpool, 10; G. Dennis, Bootle, 10; R. Willie, Liverpool, 10; J. Viner, Liverpool, 20; F. J. Harford, Liverpool, 10; A. Rabow, Liverpool, 10; J. A. Wilson, Liverpool, 10.

THE MANCHESTER AND DISTRICT HOUSE PROPERTY COMPANY (Limited).—Capital 20,000*l.*, in shares of 5*l.* A building society's business in all branches. The subscribers (who take one share each) are—J. Smith, Manchester; J. Dean, Manchester; E. Hoy, Bowden; J. Cummins, Manchester; H. Heap, Altrincham; W. T. Evans, Manchester; R. Aston, Manchester.

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THE ASH SPINNING COMPANY (Limited).—Capital 100,000*l.*, in shares of 10*l.* The business of cotton and wool spinning, doubling or weaving, &c. The subscribers (who take one share each) are—J. B. Tattersall, Royton; J. Cleg, Stretford; R. Fitton, Shaw; L. Taylor, Royton; J. Milne, Shaw; L. Butterworth, Shaw; C. Kershaw, Shaw.

THE GAS-BURNING IMPROVEMENTS COMPANY (Limited).—Capital 100,000*l.*, in shares of 5*l.* To acquire, develope, bring into use, or otherwise dispose of certain patents. The subscribers (who take one share each) are—J. T. Wosley, 7, Finch-lane; J. C. Thynne, The Cloisters; A. T. Hooper, 57, Moorgate-street; H. Lowndes, 7, Finch-lane; R. H. Bremner, Brighton; G. Dismore, Crawford; N. Hurren, Wandsworth.

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THE HOUSE OWNERS' ASSOCIATION (Limited).—Capital 50,000*l.*, in shares of 10*l.* To lend on the security of land or houses. To sell, let, or otherwise dispose of the properties of the company. The subscribers are—J. Bowen, 145, Maida Vale, 50; J. Dolleymore, 7, Maida Vale, 50; J. H. Pearson, 16, Millbank-street, 50; J. Spink, St. John's Wood, 50; J. G. Amite, 5, Maida Vale, 50; G. Skudder, Thorburn-square, 50; A. Bevis, 16, Millbank, 10.

THE WHEAL BENNY MINING COMPANY (Limited).—Capital 20,000*l.*, in shares of 5*l.* To purchase or otherwise acquire, according to the terms of a certain agreement, the Wheal Benny Mine, situated in the manor of Calstock, county of Cornwall, and other mines, their respective metals, minerals, and products, or any lease or leases of such mine or mines. The searching for, mining, working, winning, digging, raising, purchasing, or otherwise acquiring, washing, crushing, reducing, refining, and manufacturing, tin, arsenic, copper, silver, and other ores, metals, minerals, and products thereof respectively, and the dealing in, selling, and disposing of same. The subscribers are—C. N. Crawfurd, 10, Warwick-square, Bart., 100; H. J. Clow, 7, Pembroke Villas, gentleman, 10; W. R. S. Callcott, 1, Bath-place, professor of music, 10; L. G. Weston, 73, Abingdon-road, gentleman, 1; G. H. Redmond, Walthamstow, gentleman, 2; W. F. F. Handcock, 10, Grafton-street, C.E., 20; F. A. Steele, Burnt Ash-lane, clerk, 1. The following gentlemen constitute the first board of directors:—Sir C. N. Crawfurd, H. J. Clowse, W. F. F. Hancock.

THE COURT CIRCULAR NEWSPAPER COMPANY (Limited).—Capital 5000*l.*, in shares of 10*l.* To acquire, print, and publish an established weekly newspaper. The subscribers are—H. S. Clarke, Westbourne Park, 2; W. L. J. Ellis, 10, Bedford-row, 1; G. H. Ellis, 33, Blomfield-road, 1; E. Arigdes, 15, Great George-street, 1; S. H. d'Arigdor, 98, Harley-street, 1; A. W. Foreman, Stockwell, 1; H. Clarke, Westbourne Park, 1.

SANITARY IMPROVEMENTS AND APPLIANCES SYNDICATE (Limited).—Capital 15,000*l.*, in shares of 10*l.* The ordinary business of sanitary and general engineering. The subscribers (who take one share each) are—T. Rogers, 179, Vauxhall Bridge-road; R. Jenkin, South Hackney; J. F. Jones, Hackney; E. Stamp, 40, Newington-crescent; H. Mason, 49, Peckham-grove; H. Jordan, 183, Coldharbour-lane; A. H. Dee, Camberwell.

THE RIO SIL MINING COMPANY (Limited).—Capital 350,000*l.*, in shares of 1*l.* To acquire, fully develope, and work a certain mining property situated in Spain. The consideration of the purchase being 300,000*l.*, the whole of which is payable in fully paid up shares; and generally to conduct all operations incidental to the purposes of a mining company. The subscribers (who take one share each)—are C. Tottenham, Isle of Wight, gentleman; T. S. G. Kirkpatrick, Isle of Wight, no occupation; J. H. H. Duncan, 4, Copthall Buildings, accountant; F. S. Baikie, 78, Onslow Gardens, no occupation; E. J. Halsey, 77, Cornhill, merchant; J. Taylor, 1, Clanricarde Gardens, no occupation; F. S. de C. G. Wilson, 72, Regent-street, no occupation. The number of the directors must not exceed 11 or be less than three. The qualification is fixed at shares representing the value of 250*l.*, and the subscribers will appoint the first directors.

DEUTSCHE SPRENGSTOFF ACT.-GES.

TRADE MARK. Deutsche Sprengstoff A.G. Hamburg.

(GERMAN EXPLOSIVES COMPANY, LIMITED),

HAMBURG.

DYNAMITE

Of the HIGHEST DESCRIPTION, and of the maximum strength allowed by the British Explosives Act (75 per cent. Nitroglycerine).

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SHIPMENTS EFFECTED TO ALL PARTS. STOCK KEPT IN LONDON AND NUMEROUS COUNTRY MAGAZINES.
AGENTS WANTED IN THE COLONIES.

ESTABLISHED 1825.

EDWIN LEWIS AND SONS,

Patent Tube Works, MONMORE GREEN, and Britannia Boiler Tube Works, ETTINGSHALL,

WOLVERHAMPTON,

MANUFACTURERS OF

Lapwelded & Buttwelded Wrought-iron, Steel, or Homogeneous Tubes

FOR EVERY

COLLIERY OR MINING PURPOSE.

COLLIERY VENTILATING TUBES.

WILLIAM THOMPSON,

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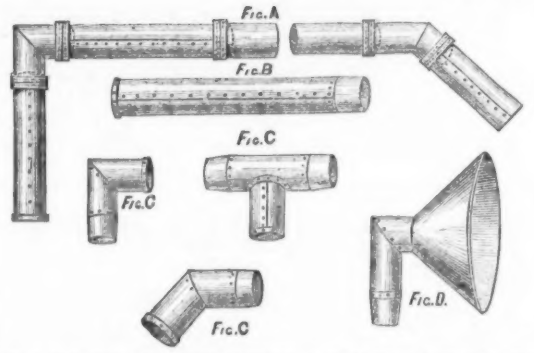

COLLIERY VENTILATION TUBES.

Fig. A,—Shows the tubes adapted for any variation in direction.
Fig. B,—Straight length of tube.
Fig. C,—Different angle bends.
Fig. D,—Is a hopper to receive air at top of shaft.

Wrought-iron Buckets.
Baskets, Kegs, Pit Tubs,
Ash Barrow Bodies,
Ventilating Tubes for
Collieries, Tanks,
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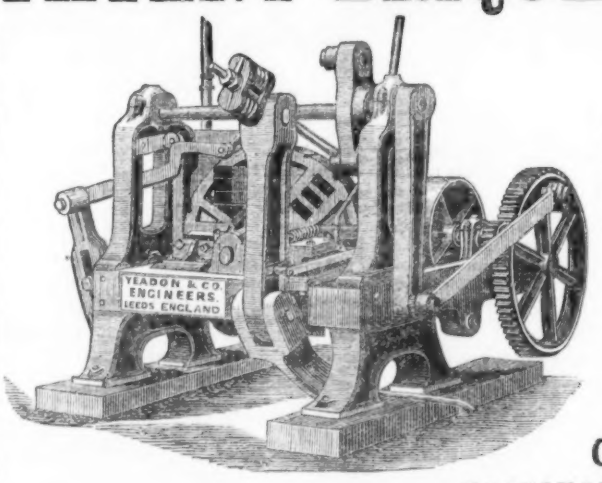
PATENT BRIQUETTE MACHINE.



GREAT SAVING NO WASTE COAL.

NO COLLIERY SHOULD BE WITHOUT.

These Machines utilise small coal or coke by making it into Briquettes or blocks compressed fuel at the rate of 36,000 per day The cost of preparing, mixing, and making is under One Shilling per ton. The Briquettes sell readily for Locomotives, Household, or other purposes. Full particulars on application to

YEADON AND CO.,

LEEDS,

ENGINEERS AND CONTRACTORS

FOR EVERY DESCRIPTION OF PLANT FOR

Collieries, Mines, and Brickworks

TESTIMONIALS

Messrs. Yeadon and Co, Leeds HARBONNAGE DE BERNISSART, PRES PERUWELZ (BELGIUM), JANUARY 4TH, 1878.
I continue to be **perfectly satisfied** with the work performed by the two patent Briquette Machines as well as with that of the Steam Engine, Mixer, &c., which you supplied a few months ago for the manufacture of compressed slack Briquettes, and that I can recommend them as being the **best machines** I know of, after having carefully studied **all the Briquette Machines** constructed at home and abroad. G. FAGES, General Manager.

SOCIETE DES CHARBONNAGES REUNIS DU RIEU DU CŒUR ET DE LA BOULE. QUAREGNON (BELGIUM), SEPTEMBER 13TH, 1879
Messrs. Yeadon and Co., Leeds.
We are **entirely satisfied** with the erection and working of the two Briquette Machines, as well as the Steam Engine and Mixing Apparatus. A. FRANEAU, Managing Director.

Messrs. Yeadon and Co., Leeds. CHARBONNAGE DE BERNISSART, PRES PERUWELZ, JANUARY 24TH, 1879
I continue to be highly satisfied with the Briquette Machines which you supplied in 1877. They do their work very well, and produce the Briquettes very regularly, and of a good quality. G. FAGES, General Manager.

Messrs. Yeadon and Co. SOCIETE HOUILLERE DE VENDIN-LEZ-BETHUNE, PAS-DE-CALAIS, DECEMBER 2ND, 1880.
I have the honour to inform you that the Briquette Machines **work very well.** The Briquettes are **very well made.** I am highly satisfied with your workmen, who have done their work very well. SYLVA CATTIER, General Manager.

The undersigned, Civil Engineer of Mines, Chevalier of the Legion of Honor, Consulting Engineer fo the Mines de Vendin-lezto, Bethune, Pas-de-Calais, certifies that the Briquette Machinery for making Briquettes of Coal, supplied by Messrs. Yeadon and Co. to the above Company **is working to their entire satisfaction.** E. LISBET.
Lille, December 28, 1880.

For the Excellence of our Manufactures we have received the following AWARDS:—VIENNA EXHIBITION, 1873, Diploma of Merit; SOUTH AFRICAN EXHIBITION, 1877, Gold Medal; PARIS EXHIBITION, 1878 (the ONLY ONE awarded to any Tin-plate Manufacturer), Gold Medal; SYDNEY EXHIBITION, 1879, First-class Diploma; MELBOURNE EXHIBITION, 1881, Gold Medal—Special Highest Award.

E. P. & W. BALDWIN, WILDEN WORKS, **NR. STOURPORT,**

MANUFACTURERS OF

SHEET IRON

Brands—

"BALDWIN-WILDEN" AND "SEVERN."

TIN PLATES.

"E P & W B / W H" "WILDEN" "UNICORN" "ARLEY" "STOUR."

EXPORT AGENTS—BROOKER, DORE, & CO., CORBET COURT, GRACECHURCH STREET, E.C.

FOREIGN MINING AND METALLURGY.

The intelligence received with respect to the Belgian coal trade remains favourable. There has been a brief spell of cold weather, and, although the winter is now too far advanced to admit of much importance being attached to the change, it has not been without some effect upon the markets for household coal. In the Couchant de Mons industrial coal has become scarce, and it is considered certain that, if the iron trade were in a more satisfactory condition, an attempt would be made to advance rates. There is, however, no likelihood of a rise under present circumstances. With the commencement of February it may be considered, also, that the coal season is approaching its close. The aspect of the German iron trade is fairly good. The deliveries made of late from Westphalia to the ports of the North Sea and the Baltic have been very considerable, although England is also a serious competitor. Prices are still rather high, not for current deliveries, but for long-termed contracts. The extraction of the Sarrebruck mines amounted in December last year to 496,348 tons, or 30,586 tons more than in December, 1881. For the whole of 1882 the extraction of the Sarrebruck mines was 5,480,181 tons, against 5,119,468 tons in 1881. The deliveries actually made from the Sarrebruck district in 1881 amounted to 5,486,562 tons, against 5,130,769 tons in 1881. The coke trade remains in a favourable state. Representatives of the Westphalian coal trade have just held a meeting at Bremen in order to establish a company for the exportation of Westphalian coal. The imports of coal into the Zollverein in the first 11 months of last year amounted to 1,964,838 tons, while the exports of coal from the Zollverein in the same period were 6,881,184 tons.

There is scarcely any change to report in the general condition of the Belgian iron markets. Pig can scarcely fall much lower, stocks being reduced to a minimum, while the production is engaged for at least three months in advance. Coal and coke are also firm, so that no reduction in iron appears practicable for some time to come. On the other hand, it is very difficult for ironmasters to maintain high pretensions when the existing demand does not support them, so that the proprietors of rolling-mills will, probably, shortly find themselves in a rather embarrassed state. Those rolling-mills which have blast-furnaces attached to them are naturally in a relatively more favourable condition. Pig has been firm in Belgium, casting pig making 3*l.* per ton, and refining pig 2*l.* 10s. per ton. English pig has been supported with rather less firmness, at 2*l.* 10s. 6d. per ton. Iron has remained at 5*l.* 4s. per ton; attempts have been made to carry this rate to 5*l.* 8s. per ton, but no transactions have been reported at this rate. The difference of 8s. per ton per number remains well established. Girders have experienced no change. No. 2 plates have remained at 7*l.* 4s. per ton, and No. 3 at 8*l.* per ton.

The French iron trade has not experienced much change. Merchants' iron has continued to make 7*l.* 16s. per ton at Paris. There is an impression, however, that production is greatly in excess of demand, and that, notwithstanding the large requirements of consumption, a great plethora will shortly be witnessed. The Government will be under the necessity of reducing its orders in consequence of the less satisfactory aspect of the Budget, while, at the same time, powerful works in course of completion, or recently brought into operation, at Bayonne, St. Lazaire, Longwy, and Valenciennes, will shortly bring in a contingent of fresh supplies. In the Longwy group prices have not changed. Refining pig remains quoted at 2*l.* 16s. per ton, and No. 3 casting pig at 3*l.* 6s. to 3*l.* 6s. 6d. per ton. There are now 24 furnaces in blast in the Longwy group, while one furnace is out of blast. Five furnaces are in course of construction in the same group. German ironmasters are not very well satisfied with the tone of the German iron markets, although a part of the production is engaged until the close of the spring. This part represents a comparatively small proportion of the aggregate output. Consumers scarcely feel the reduction which has taken place in the production in consequence of their having previously accumulated somewhat considerable supplies. The quotations current for puddling pigs are not accepted very readily, the proprietors of rolling-mills hoping to do business with English ironmasters in consequence of the reduction of rates in Great Britain. Speigel pig and casting pig have sold freely at former rates, but new contracts for bars, plates, and other descriptions of rolled iron are scarce, while old orders have been nearly worked out. The German steelworks are still well occupied.

GOLD MINING IN AUSTRALIA—VICTORIA.—We are favoured by the Secretary for Mines of Victoria — Mr. T. Couchman — with the official returns for the quarter ended Sept. 30. There were 37,468 miners employed, of whom 13,955 Europeans and 7361 Chinese were employed in alluvial mining, and 16,042 Europeans and 110 Chinese in quartz mining. The approximate value of the mining plant in use was 1,946,434*l.* In alluvial mining 232 steam engines of 6629-horse power in the aggregate, and in quartz mining 84 0 steam-engines of 17,901-horse power in the aggregate were employed. There were 19 boring machines used in alluvial mining, and 97 in quartz mining. Of the latter 65 were used in the Sandhurst division of the Sandhurst district, and 12 in the Pleasant Creek division of the Ararat district. In alluvial mining only eight, and in quartz mining only eight divisions out of the 62 are using machine boring. During the quarter under review the quantity of gold got was 225,085¼ ozs., of which 85,740½ ozs. was obtained from alluvial, and 139,345½ ozs. from quartz. During the quarter the 286,481½ tons of gold crushed yielded 128,297 ozs., or at the rate of 8 dwts. 23 grs. per ton of quartz. Of the quartz tailings and mullock 6039 tons crushed yielded 767 ozs. 15 dwts. 11 grs., or at the rate of 2 dwts. 13 grs. per ton. Of pyrites and blanketings operated on 1957½ tons crushed yielded 3960 ozs. 12 dwts., or 2 ozs. 12¼ grs. per ton.

NEW USE FOR IRISH PEAT.—Referring to the suggestions now being made for enabling the Irish to find profitable employment in their own country, Mr. A. G. Church, the managing director of the London General Omnibus Company, in a letter to the Times, says.—Prepared peat is now being largely used in London stables as litter for horses. The supply is at present coming exclusively from Germany. There are, I am told, inexhaustible supplies of peat in Ireland. Why do not some of the friends of Ireland establish a trade of moss peat litter, and give us supplies from Ireland instead of Germany?

CORNISH PUMPING-ENGINES.—The number of pumping-engines reported for December is 14. They have consumed 2746 tons of coal, and lifted 20·9 million tons of water 10 fms. high. The average duty of the whole is, therefore, 51,300,000 lbs. lifted 1 ft. high by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

	Millions
Cook's Kitchen—55 in.	52·1
Dolcoath—85 in.	59·2
Mellanear—76 in.	52·5
West Basset—Thomas's 60 in.	61·8
West Wheal Seton—Harvey's 85 in.	63·4
West Wheal Seton—Rule's 70 in.	59·4

Mr. Justice Fry has appointed Mr. George Chandler (Chandler, Pixley, and Co.) official liquidator of Charles Hampton and Co. (Limited).

ESTABLISHED 1852.

SYBRY, SEARLS, AND CO.,

MANUFACTURERS OF THE

CELEBRATED MINING STEEL, BRANDED SSS

Cast Steel, Shear, Blister, Spring, Hammer, and Pick Steel.

Special Rock Drill Steel.

Mining Tools, Files, Saws, Hammers, and Picks.

CANNON STEEL WORKS, SHEFFIELD.

SPECIAL FIRST AWARD, Sydney, 1879. SILVER MEDAL, Melbourne, 1880. GOLD MEDAL, Adelaide, 1881.

LLOYD AND LLOYD,

Albion Tube Works, BIRMINGHAM, & Coombs Wood Tube Works, HALESOWEN,

MANUFACTURERS OF

WROUGHT-IRON WELDED TUBES AND FITTINGS,

For Gas, Steam, and Water, Plain or Galvanised.

BOILER TUBES IN IRON, HOMOGENOUS METAL, AND STEEL.

Hydraulic Tubes, Boring and Lining Tubes for Wells, &c. Tuyere Coils.

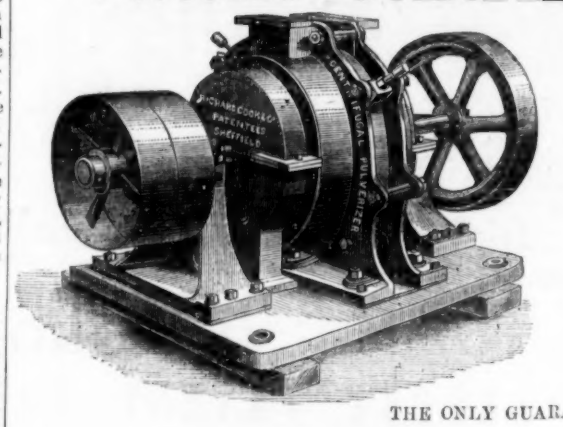
LARGE TUBES UP TO 4 FT. DIAMETER.

London Office 90, Cannon-street, E.C. Warehouses: London, Liverpool, Manchester.

AGENT FOR NEW SOUTH WALES:—Mr. JAMES BROWN, 317, George-street, Sydney.

LUCOPS'

Patent Centrifugal Pulveriser,



(Two tons per hour with 5 horse power actual)

For reducing to an impalpable Powder, or to any requisite degree of fineness, all materials capable of being thus treated. CEMENT CHEMICALS, GRAIN, COAL, COLOURS, PHOSPHATES, LIME, COPPER, TIN, ZINC, and other Ores with rapidity, completeness, and perfect uniformity.

THE ONLY GUARANTEED MACHINE FOR

GOLD QUARTZ.

This mill consists of a circular iron casing, the section being elliptical in form, and is fixed verticallyon a firm bed or foundation plate, a shaft runs through the centre of the casing on which is keyed a series of arms, in the extremities of which revolve two or more slightly oblong iron rollers, which, when put in motion, fly off from the centre and run upon the interior periphery of the casing, and by centrifugal force crush and pulverise the article under treatment.

The effect produced by this system is most extraordinary in its practical results, the power required is small in consequence of the comparative absence of friction from the working parts of the mill, the combined results of the rolling action of the crushers and their impact by centrifugal force on the material being the same in kind, but in degree far exceeding that of edge runners, the sides of the casing are formed as open wire sieves of the degree of fineness required and a series of propelling blades attached to and revolving with the central shaft drive the material under treatment through the sieves as it is pulverised; by this arrangement the degree of fineness can with certainty be arrived at from coarse to extreme fine, and that with uniformity.

Intending purchasers can at all times satisfy themselves by sending the material they wish to operate on, and seeing it pulverised Over 300 in use. Prices and testimonials free on application.

RICHARD COOK & CO., ENGINEERS, SHEFFIELD.

LONDON: 147, QUEEN VICTORIA STREET, E.C.—R. G. FOOT, AGENT.

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MANUFACTURERS OF

MINING STEEL of every description.

CAST STEEL FOR TOOLS. CHISEL. SHEAR. BLISTER, & SPRING STEEL

MINING TOOLS & FILES of superior quality.

EDGE TOOLS, HAMMERS, PICKS, and all kinds of TOOLS for RAILWAYS, ENGINEERS, CONTRACTORS, and PLATELAYERS LOCOMOTIVE ENGINE, RAILWAY CARRIAGE and WAGON SPRINGS and BUFFERS.

SHEAF WORKS AND SPRING WORKS, SHEFFIELD.

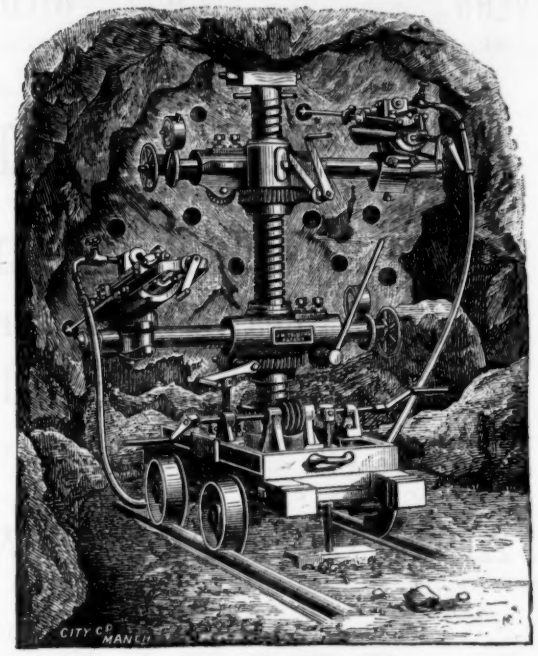
LONDON OFFICES—60, CANNON STREET, E.C. PARIS DEPOT—12, RUE DES ARCHIVES. BOSTON, MASS., U.S.—40, KILBY STREET

T. LARMUTH & CO.,

ENGINEERS,

MANCHESTER, ENGLAND.

MINING INSTITUTE OF CORNWALL — J. McCulloch — FIRST CLASS. — ONE AND ALL



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McCULLOCH'S

PATENT ROCK DRILL CARRIAGE

STEAM CRANES, OVERHEAD TRAVELLERS,
ENDLESS CHAIN ELEVATORS, AND FEED SHEETS,
TRAVERSERS AND TURNTABLES,

Engineers' Tools of every description.

LLOYD'S FANS,

MINE VENTILATING FANS,

CENTRIFUGAL PUMPS.

MAKERS OF

STURGEON'S NEW

PATENT TRUNK AIR COMPRESSOR

WINDING AND PUMPING ENGINES,

IMPROVED CONDENSING AND NON-CONDENSING HIGH-PRESSURE

STEAM ENGINES,

With Ordinary or Expansion Valves, Compounded on Non-Compounded

SPECIALITIES FOR

LEATHER BELTING MANUFACTURERS

SHAFTING, GEARING, AND PULLEYS.

Sole Makers of J. Priestman and Son's Patent Leather Striking Machines.

JOHN SPENCER AND SONS,

Newburn Steel Works, Newcastle-on-Tyne.

STEEL

CASTINGS

WHEELS & AXLES

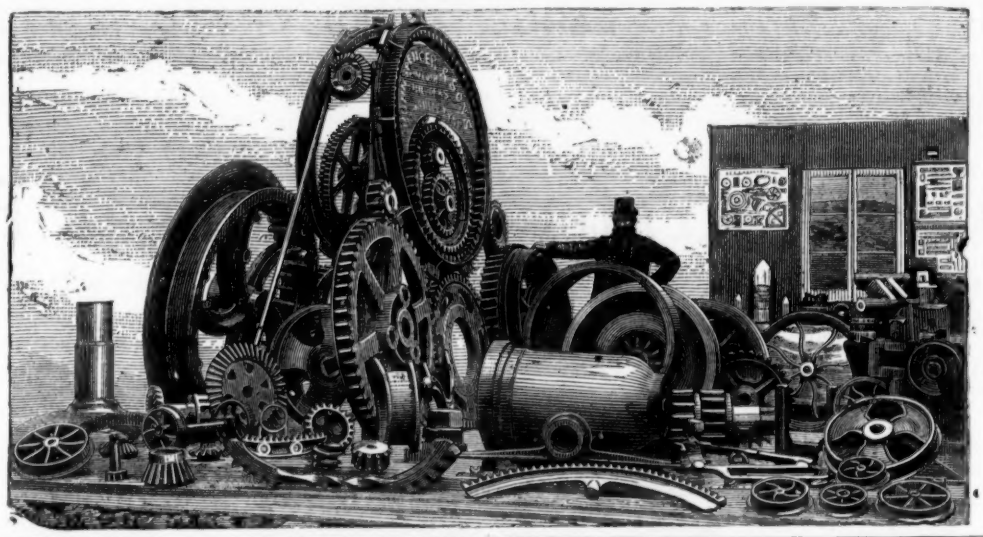
FITTED COMPLETE.

INCLINE PULLEYS AND ROLLERS.

STAMP HEADS AND SHOES

AND EVERY DESCRIPTION OF

STEEL CASTINGS.



STEEL

FORGINGS.

RAILWAY SPRINGS AND BUFFERS,

JUMPER STEEL,

MINING CAST STEEL

AND

BEST CAST STEEL FOR TOOLS.

IMPROVED VOLUTE SPRINGS

SOLD DRAWN BRASS AND COPPER BOILER TUBES

FOR LOCOMOTIVE OR MARINE BOILERS

EITHER

MUNTZ'S OR GREEN'S PROCESS.

MUNTZ'S METAL COMPANY (LIMITED

FRENCH WALLS

NEAR BIRMINGHAM.

LONDON AGENTS—CHARLES MOSS and Co., 23, Rood Lane, London, E.C.

THE

EXCELSIOR ROCK DRILL.

The construction of this Drill is remarkably simple. There being ONLY ONE MOVING PART—the piston—it is almost impossible to get out of order. The air is taken in through the gland, and by a peculiar arrangement of ports and passages the motion of the piston automatically admits and cuts off the supply of air to each end of the cylinder.

Its chief advantages are simplicity, durability, strength, and lightness, economy in first cost, consumption of air and repairs, adjustability of cradle and length of feed. Invaluable for use in foreign countries where repairs are so difficult and expensive. The makers undertake to keep the machine in repair entirely free of cost for six months from date of purchase. In order to prove the superiority of these machines, the makers are prepared to send one on trial to any Mining or Tunnelling Company, they being at perfect liberty either to keep it or return it after trial.

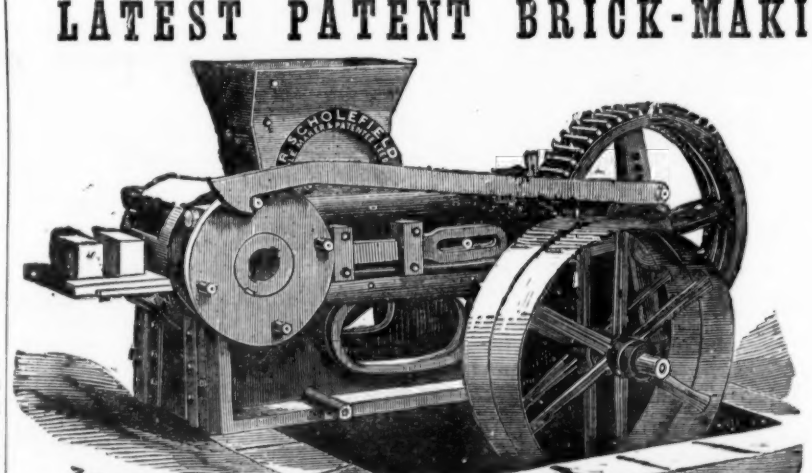
For prices, particulars, &c., apply to—

J. H. WYNNE,

LOWER BRIDGE STREET, CHESTER.

R. SCHOLEFIELD'S

LATEST PATENT BRICK-MAKING MACHINE.



R. S. begs to call the attention of all Colliery Owners in particular to his PATENT SEMI-DRY BRICK MACHINE, and the economical method of making bricks by his patent machinery from the refuse that is taken from the pits during the process of coal-getting, which, instead of storing at the pit's mouth (and making acres of valuable land useless) is at once made into bricks at a very small cost, by R. S.'s Patent Brick-making Machinery. If the material is got from the pit hill, the following is about the cost of production, and the hands required to make 10,000 pressed bricks per day:—

2 men digging, each 4s. per day	£0 8 6
1 man grinding, 4s. 6d. per day	0 4 0
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 6
1 engine-man, 5s. per day	0 5 0
1 man wheeling bricks from machine to kiln, 4s. per day	0 4 0
Total cost of making 10,000 pressed bricks	£1 5 0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.

As the above Machinery is particularly adapted for the using up of shale, bind, &c., it will be to the advantage of all Colliery Owners to adopt the use of the said Brick-making Machinery.

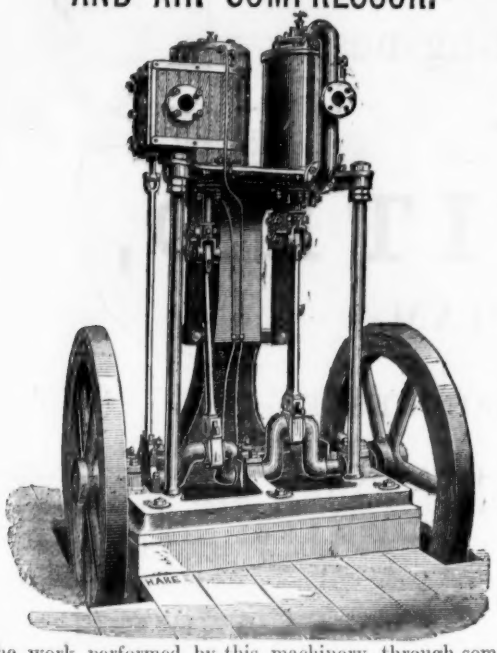
THE MACHINES CAN BE SEEN IN OPERATION AT THE WORKS OF THE SOLE MAKER AND PATENTEE DAILY.

SCHOLEFIELD'S ENGINEERING & PATENT BRICK MACHINE WORKS.
KIRKSTAL ROAD, LEEDS.

THE

"Champion" Rock-borer

AND AIR COMPRESSOR.



The work performed by this machinery, through some of the hardest rock, proves its great value.

In Cornwall, irrespective of the work done by the "Champion" Rock-borers purchased by various Mines, the drivage, rising, stoping, and sinking on the proprietor's own contract work, amounts to over 940 fathoms.

The wood-cut represents one of these Air-Compressors. Four of them, of three different sizes, can be seen, at work, in about an hour's walk through the Camborne Mining District.

R. H HARRIS,
ENGINEER,
63, QUEEN VICTORIA STREET, LONDON.

PATENT DUPLEX LAMPS,

FOR COLLIERIES, IRONWORKS &c.,
SUITABLE FOR

Pit Banks, Engine-Houses, &c., &c.

Each Lamp gives a light equal to 26 candles.

No breakge of Chimneys from Heat

S. HOOPER,
CLOSE TO NEW STREET STATION,
Lower Temple Street,
BIRMINGHAM.

Illustrations on application.

This season special attention has been given to making these LAMPS THOROUGHLY WINDPROOF.

HEPBURNS'
PUMP LEATHER
WATERPROOF

By a specia method of preparation this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

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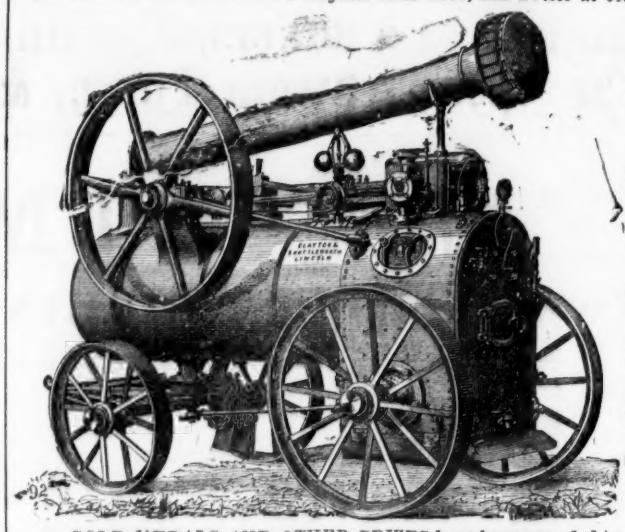

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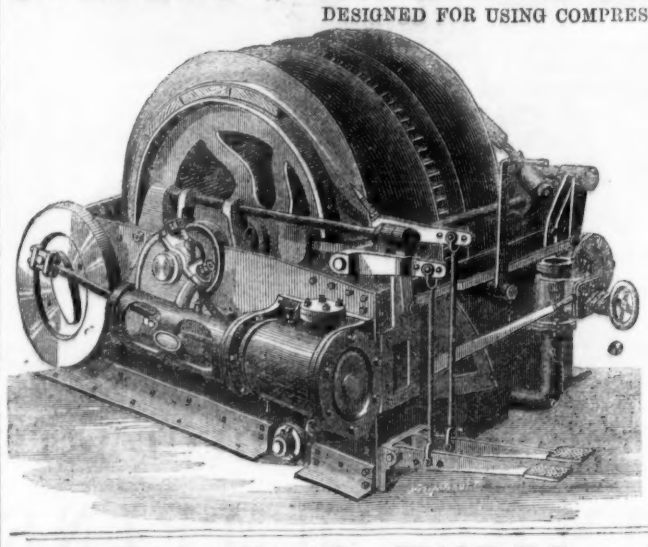

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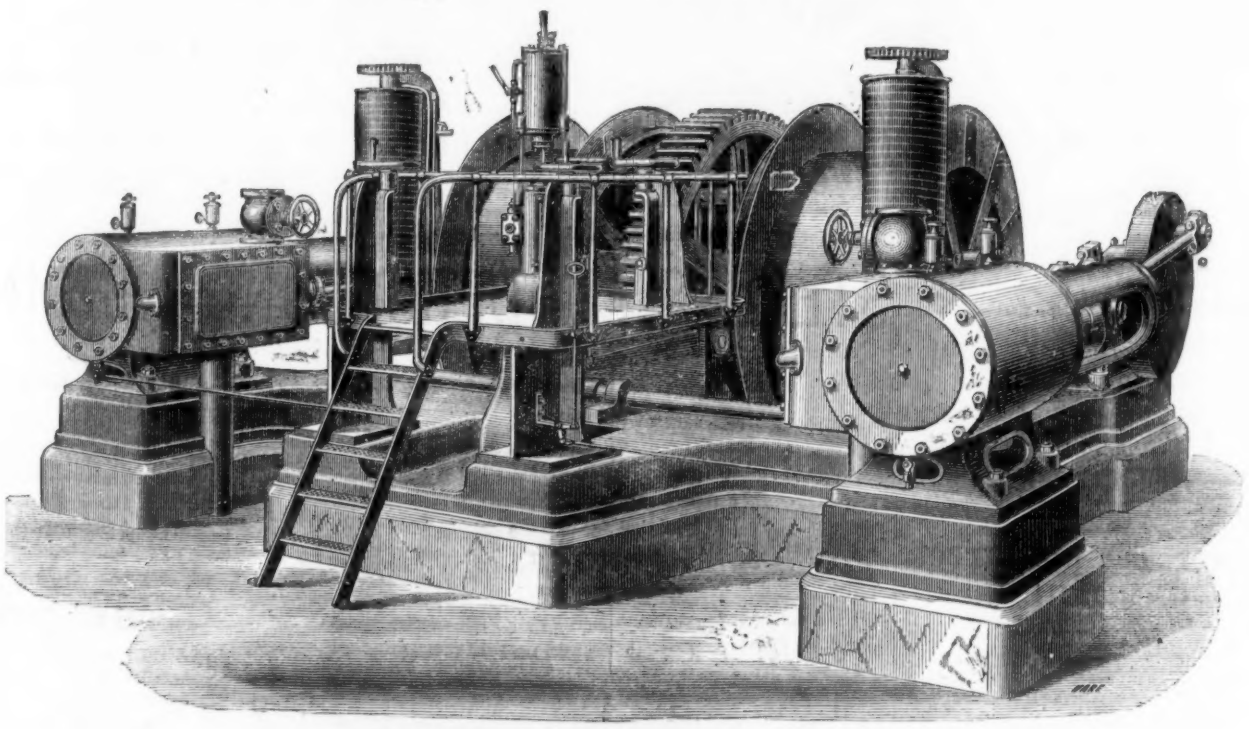

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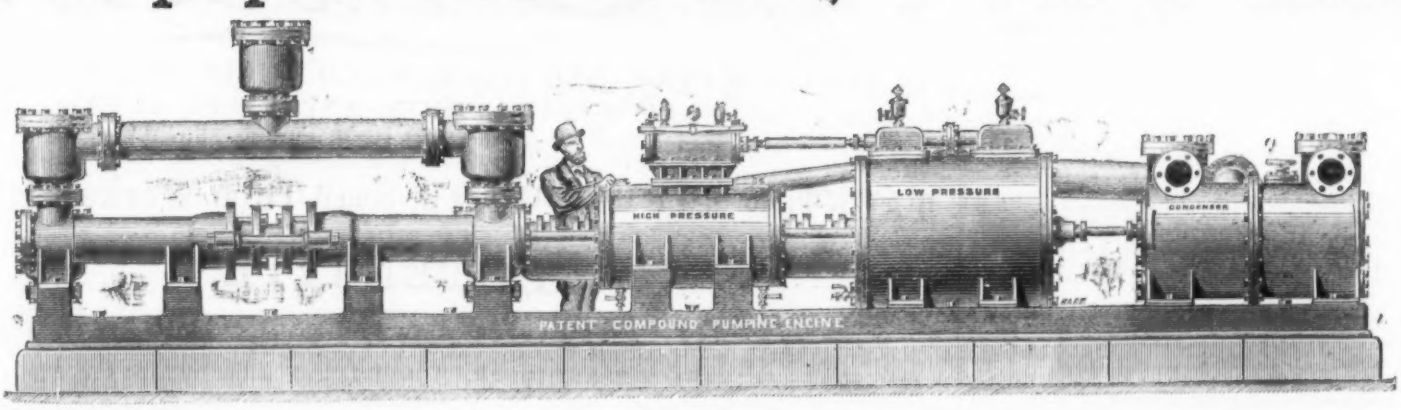

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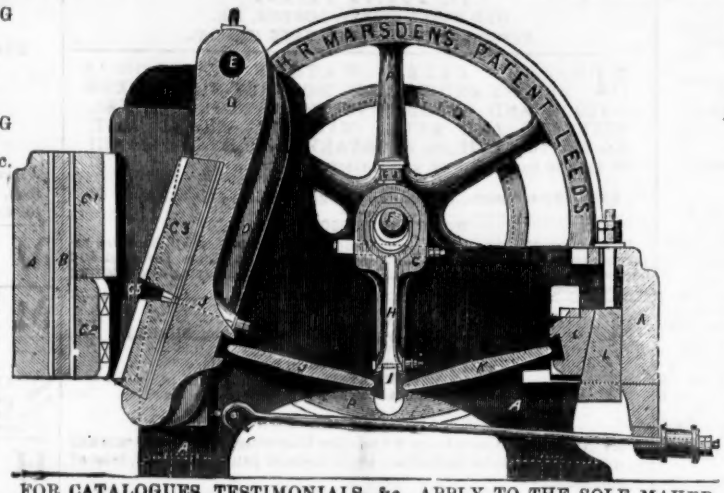

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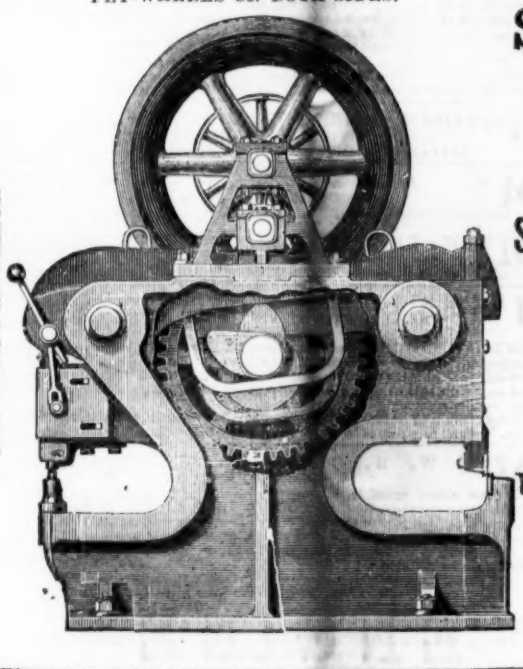

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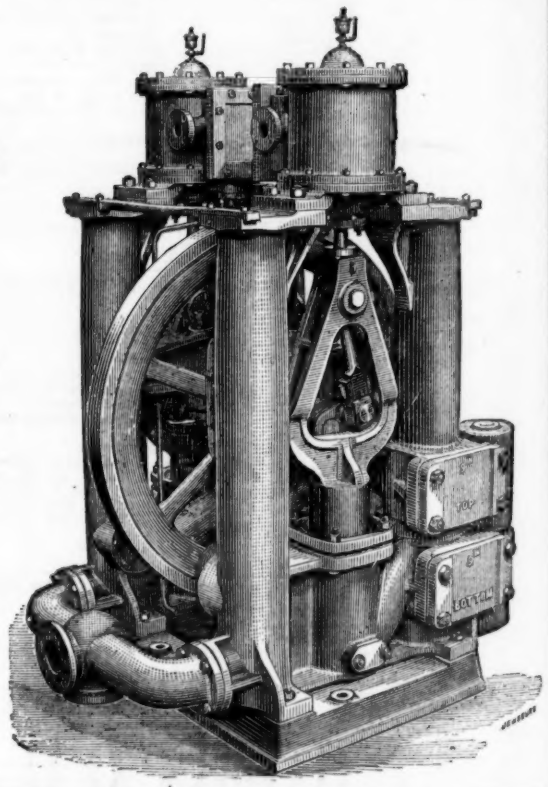

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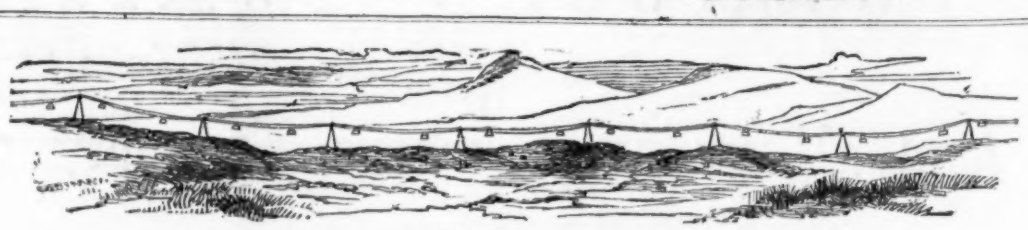

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